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THE Finish Line

LET'S TALK REFRIGERATORS. In our October editorial we mentioned the fact that over a period of a few years the enameling industry lost a valuable outlet for its products on the exterior of domestic electric refrigerators. (To repeat — porcelain enameled exteriors dropped from 55% to about 5%.)

This business was not lost to finishes that we could honestly acknowledge as superior. It was, however, lost to a type of finish that had sufficient merit to make it readily salable. In addition, consistent advertising and progressive selling policies were used in establishing these finishes — both with the manufacturer and the retail sales outlets.

A comparison

If a personal reference may be permitted we will draw a comparison. In late 1937 your editor built a new home, and into it went a new refrigerator of popular make — *an all porcelain enameled model*. At the same time a banker friend built a new home and into it went a new refrigerator of identical make and model but with a *newer substitute finish* on the exterior.

Frankly, there was little difference in the appearance of these two refrigerators when they were purchased, and there would be no real reason for the purchaser to select the porcelain enameled exterior unless there was good evidence presented by the salesman.

Look at them now

Now, seven years later, visitors viewing the all porcelain enameled refrigerator ask if it is new, for it looks exactly the same in every respect as the day it was installed.

In contrast, the friend's refrigerator, while still presentable, is decidedly "yellowish" in color and has numerous scratches, mars and stains.

A logical question

A question that seems logical in this connection is — Why build a refrigerator that is designed to last for ten, fifteen or more years from a mechanical standpoint,

and then give it a finish that may, in many instances, be shoddy in half that time?

The wartime cessation from appliance purchasing has given the buyer a good opportunity to judge the quality of past purchases. This would seem to be a logical time for the quality refrigerator manufacturer to consider the "problem" of exterior finishes.

Another important point

Another point that might well be considered is the pricing policy for porcelain enameled exteriors. When twenty dollars or more *extra* is charged for the so-called "DeLuxe" models with porcelain exteriors, it classifies them as a separate group from the high production, or "standard" models.

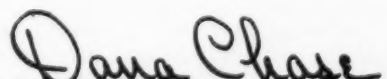
Sure — other trimmings and gadgets may be included in this price, but the fact remains that in many lines porcelain exteriors can only be obtained on the "DeLuxe" models.

An opportunity worth considering

We predict a high degree of success for the manufacturer who first introduces a "standard" refrigerator of popular size with porcelain enameled exterior, and *prices it with a differential to include only a proved difference in manufacturing cost.*

This prediction is based on the assumption that the refrigerator described would be placed in the line where it can be produced in comparable quantity to those with exteriors employing a less durable finish so that the benefits of quantity production would apply to the porcelain enameled models also.

Such a policy on the part of a leading manufacturer might well start a swing back to the more durable exteriors — it would most certainly offer the pioneering producer a strong selling tool.


Editor and Publisher



One of Inland's mills cold reducing enamel iron strip which will later be cut into sheets

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Write for Bulletin



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Firing ground coat and cover coat enamels on the same furnace chain

a procedure used successfully for over a year, prior to the war

By Joe Thornton • SUPERINTENDENT OF ENAMELING PLANT
INGERSOLL STEEL & DISC DIV., BORG-WARNER CORP., CHICAGO, ILLINOIS



When our executives came to the enamel plant early in 1941 with the idea of firing ground coat and cover coat enamels on the same furnace chain (in other words, with the same time and temperature cycle) those of us responsible for enameling were naturally more than skeptical. All of our past experience in enameling, and that of the entire industry for that matter, pointed to the necessity of firing ground coat at a somewhat higher temperature than the succeeding cover coat enamel in order that the ground or base coat would not be unnecessarily "disturbed" during the cover coat firing.

Our own experience in enameling, enameling literature and all background information indicated the desirability of about 30° to 50° differential in temperature.

If you know the Ingersoll organization you are probably familiar with the fact that our executives and engineering department have never been strong for riding on precedent only when it comes to equipment and processes. To tell them that it "hasn't been done" offers little in the way of argument. To tell them it "can't be done" is just to offer an additional challenge.

I certainly don't mean to convey the idea that our company refuses to accept well established methods merely because they are established—what I mean is that this fact alone is not enough to deter our executives and engineering department from an effort to change or improve either equipment or processing methods. This attitude has undoubtedly been

responsible for some of the plant innovations in use, and products manufactured by Ingersoll Steel and Disc.

One example that could be used concerns washing machine tub design. This company was the pioneer in the field in the development of the turtle neck tubs. Another innovation came in the use of 19 gauge steel instead of the conventional 18 gauge material normally used for tubs.

I had often heard it said when I first came to the Ingersoll plant that if a tough problem presented itself, with little precedent for guidance, the engineering department took it as a challenge and it was "meat" for our president, R. C. Ingersoll. This proved no exception in considering the production problem in our enameling plant.

When it came right down to the point of giving good substantial reasons why ground coat and cover coat could not be fired at the same time, they were not too readily available.

Increased production needed

The real problem came from the fact that it was necessary to greatly increase production of washing machine tubs and sinks, and we just didn't have the necessary enameling facilities. At the time, we were using an especially designed semi-continuous furnace for ground coat, and a standard box type furnace (6' x 13') for cover coat. The production goal at the time was a 50 per cent increase in enamel production, so we began to think in terms of a continuous furnace.

The catch to this consideration appeared to be largely one of plant space, for practically all of our exist-

ing plant space was being used to get out the production just mentioned, allowing for necessary handling and banking space.

We talked to suppliers concerning the idea of firing all enamels at the same time and temperature, and it wasn't surprising that they were also skeptical.

With the pressure from management for increased production, and insufficient convincing arguments against consideration of such a plan, we began some intensive experimental work to determine the possibility for meeting this request.

New continuous furnace installed

In the meantime plans were drawn to include a new continuous furnace. The layout placed the new furnace in the center of our existing plant and made it a central point for all other operations.

In the layout there was no provision for ground coat bank or extra handling space other than on the conveyor lines.

I am sure I wasn't the only one who had my fingers crossed on this plan, but aside from the one unorthodox requirement there was no question that the arrangement planned would greatly increase production in our plant.

The new continuous furnace was completed in early April, 1941. I won't easily forget our first day of experimental operation after the furnace had been brought up to heat. Our early trials had been encouraging, but naturally the real answer depended upon the results to be obtained in continuous operation.

We spent the first day in strictly experimental runs based on the pre-



Illustrating the alternate loading of ground coat and finish coat tubs on the furnace conveyor in the Ingersoll plant. Finish coat is loaded from the brushing booth shown at the left. The man at right loads dried ground coat tubs at a point near the re-enforcing booth.

liminary work we had been doing in the adjustment of enamel formulas, which we felt would come closest to meeting the situation. Final adjustment of enamel formulas, furnace temperatures and chain speed were made during this first day.

The second day the box and semi-continuous furnaces were closed down, and all production went on the continuous. I certainly don't mean by this that no further adjustments were necessary, for we gradually improved our results through further work. But, I can say that a number of us heaved a sigh of relief when it could be seen from the first day's actual operation that the plan would work.

Enamels helped

As you will remember, the extensive use of antimony-free cover coats was comparatively new at that time. We had been using them, but they took on a new importance as we saw the possibility of capitalizing on the higher firing temperature and their

ability to "take it" under "hard firing" conditions.

A lot of our preliminary work had concerned itself with lower firing ground coat combinations. The frit companies had been doing a great deal of work on this problem in order to decrease warping on lighter gauges which were coming into use for many appliances. This problem didn't enter into the picture on tubs and sinks, but the lower firing ground coats did appear to offer us a chance to meet our new problem.

Changes necessary

(1) Antimony free cover coat was used exclusively. (As stated, this wasn't actually a change in our plant, but is mentioned because many enamellers feel that antimony-bearing cover coats previously used would not give the same results.)

(2) Ground coat formula was changed to a slightly softer combination (We were using a so-called soft ground coat at the time) and mill additions were adjusted.

(3) Spray weights and dip weights were adjusted to help in properly maturing the enamels.

Plant routine

Our ground coat was dipped adjoining the mill room, and hung immediately onto our ground coat drier chain. At the exit end of the drier the tubs were reinforced and transferred immediately to the furnace chain. Cover coat spraying was arranged to feed the chain at approximately the same speed as the ground coated tubs.

In theory, a brushed cover coat tub would be set on every other furnace chain basket, alternating with ground coat tubs. As a matter of fact, in practice it worked out very close to this plan. This gave us approximately the same number of ground coat and finish coat tubs on the furnace chain at all times.

There would naturally be some deviation, depending on the percentage of re-work.

Finish coat inspection tables were

located along the chain about two-thirds of the furnace length from the exit end. Ground coat tubs could either be allowed to continue on the furnace chain to a point near the entrance end, where they were taken off for ground coat inspection, or they could be transferred at an earlier point to an auxiliary conveyor which served to feed the same inspection tables.

The complete elimination of unused floor space gave us a compact production unit that eliminated all unnecessary handling, and made all transfers comparatively short.

Production Increase

Almost immediately after the continuous furnace was put into use our production increased by 30 per cent, and shortly before our production was curtailed by the war it had increased by almost 50 per cent. This was the goal we had set out to reach in making the plant changes.

Possibly I should mention that all

of our tubs were run for one-coat white, which explains the alternate ground coat and cover coat tubs on the chain. We were able to get from 75% to 80% of our finish coat tubs in one coat.

Other plant procedure

There is nothing unusual about the other processes in the plant. Our cleaning and pickling setup is conventional, except that we use a sodium cyanide neutralizer instead of the straight soda ash-borax tank.

Ground coat is all dipped, and cover coat spraying is manual in turn-table booths.

Anyone who has run tubs and sinks knows that inspection is a critical part of the enamel plant operation. All ground coated tubs get careful inspection, and any doubtful tubs are held off the finish coat line to avoid later defects in the finished tub resulting from imperfection of the ground coated part.

Packers are located at the finish

coat inspection tables described earlier, and O.K.'d tubs are immediately packed in cardboard cartons and transferred to a shop conveyor feeding the shipping department.

I can say here that many of the tubs were literally out of the shop while they were still "hot."

Prerequisites for firing cover coat and ground coat together

1. *A good furnace.*—A continuous furnace would seem to be preferable, and most certainly worked out to advantage in our plant, but there would seem to be no apparent reason why this system would not work on box furnaces.

2. *A ground coat with a good firing range*—is absolutely necessary.

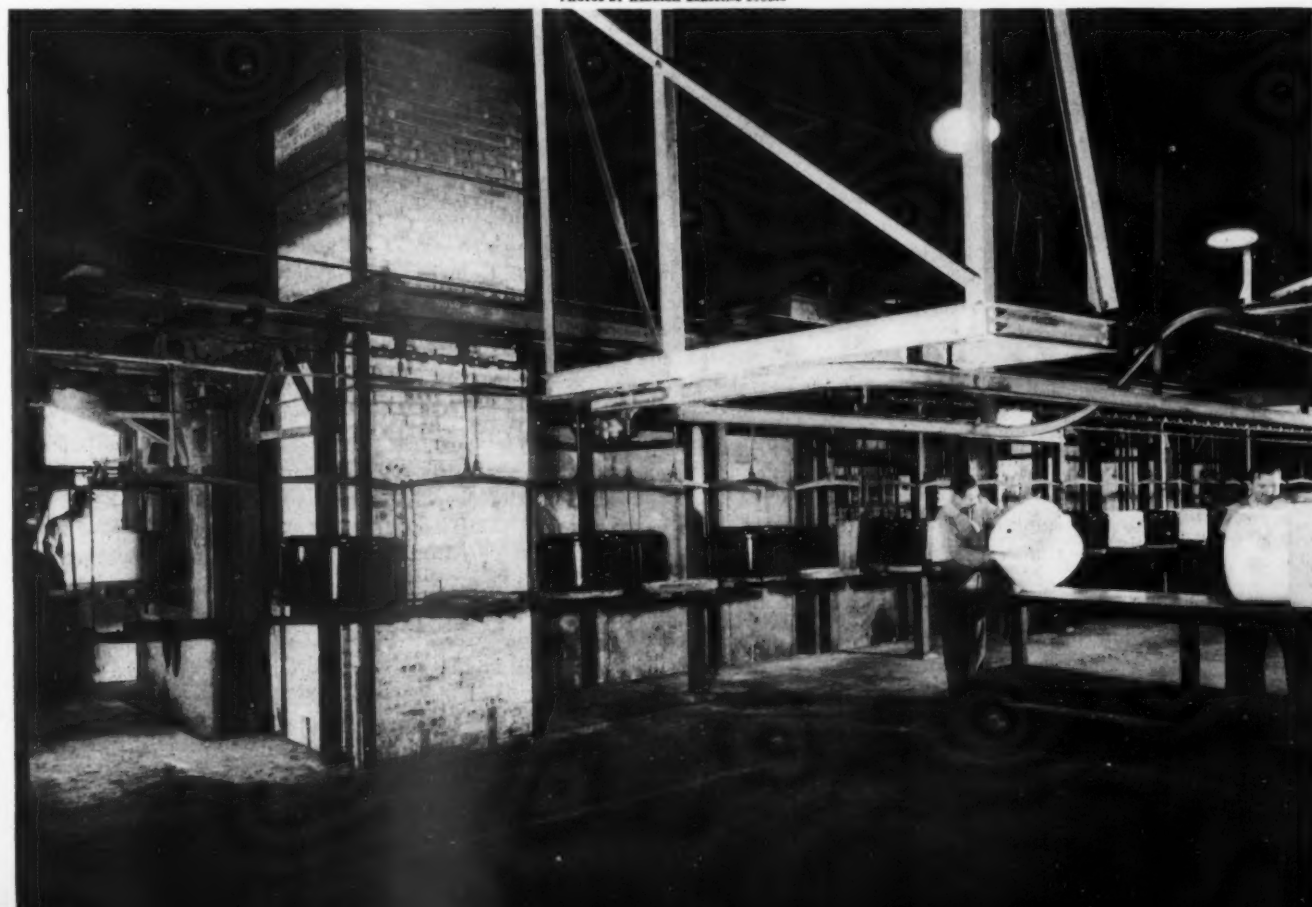
3. *A cover coat that will stand a hard fire*—is also necessary. As indicated, antimony-free enamels seem well suited.

4. *Ware of similar size, shape and gauge.*—This is desirable so that

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This photograph shows the point at which finished tubs are taken from the furnace conveyor (moving from right to left) for inspection. OK'd tubs are immediately packaged. The fired ground coated tubs continue to a point at the left where they are unloaded for inspection.

PHOTOS BY HEDRICH-BLESSING STUDIOS



Number one headache

for architectural enamel manufacturers

By Prof. R. M. King • PROFESSOR, CERAMIC ENGINEERING
OHIO STATE UNIVERSITY, COLUMBUS, OHIO

IT IS only natural that a company producing architectural porcelain enameled panels, capable of withstanding the elements for years on end without losing their original lustrous beauty, would feel it necessary to use auxiliary products with as near the same degree of permanence as possible.

The use of mastic caulking compounds for filling the joint spaces between architectural porcelain panels has left much to be desired in this connection. Many difficulties, such as wrinkling, slumping in vertical joints and pulling away from the enamel have been encountered.

Since some of the compounds were probably developed for use in masonry joints, or for uses other than porcelain enameled parts, it is not surprising that many of them are not suitable for use with the smooth, glass-like surfaces provided by porcelain enamel.

Failures of caulked joints have been in sufficient numbers to justify a reference to caulking compounds as the number one headache for the architectural enamel manufacturer when considering specific problems within the greater general problem of installation.

Research program

As part of its program on architectural porcelain enamels, the technical section of the Porcelain Enamel Institute undertook, early in 1939, to compile information on some of the caulking materials used in the installation of porcelain enameled panels. In addition to collecting practical information on the sources and application of these materials, preliminary experimental work was instituted to develop suitable tests for evaluating the compounds and ob-

taining engineering data on their properties. Three types of tests were developed — namely, “a strain test,” “a slump test,” and an “exposure test.”

Strain test

This test was designed to determine the ability of a caulking compound



Professor King

FINISHTOTO

to maintain contact with a given surface and, hence, its ability to maintain a watertight joint with that surface and continuity within itself when subjected to stress through structural movements.

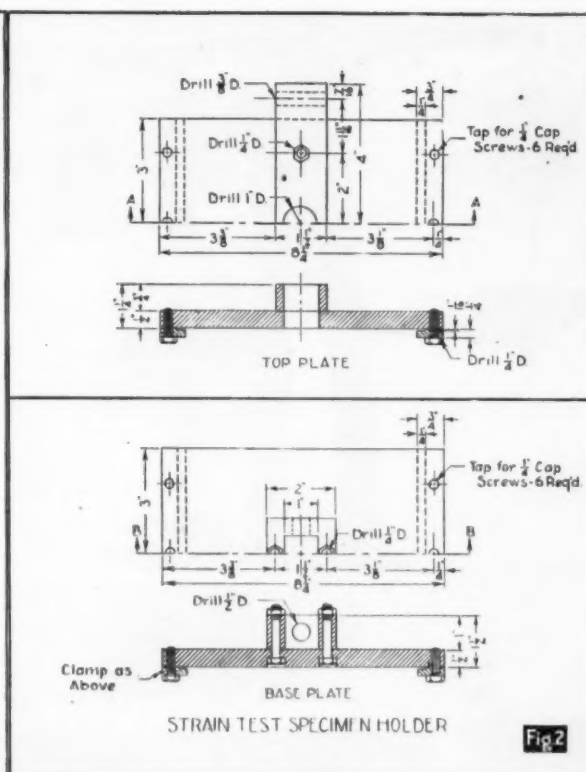
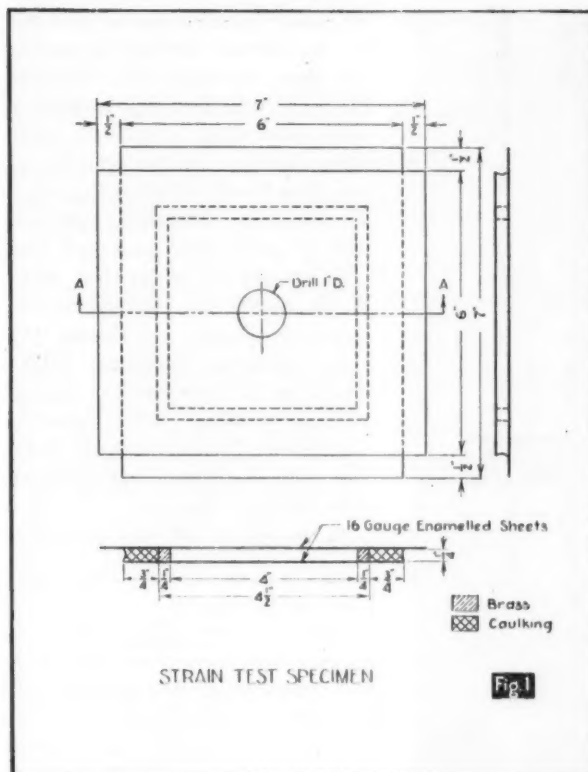
Specimen: The test joint is made between two 6" x 7" "flat" panels of sixteen gauge enameled sheet steel, coated on both sides with ground coat and one cover coat. One panel has a 1" diameter hole in the center. Test panels are spaced $\frac{1}{4}$ " apart by a $4\frac{1}{2}$ " x $4\frac{1}{2}$ " (outside dimensions) hollow square made by gluing $\frac{1}{4}$ " x $\frac{1}{4}$ " brass rod. This "spacer" is laid concentrically on one panel not provided with a hole, and the panel provided with a hole placed on top so that the

hole is concentric with the spacer and the bottom panel, and also so that the long side of one piece is at right angles with the long side of the other. (See Figure 1.) This forms $\frac{1}{2}$ " projections by means of which the assembly can be clamped in the straining apparatus. This assembly provides a caulking space $\frac{3}{4}$ " deep and $\frac{1}{4}$ " thick.

The assembly is then placed on a revolving stand, and a 1 kg. weight is placed on the top panel to hold it in place. The joint is then filled with caulking from a hand gun, after which it is carefully pointed and then allowed to cure for thirty days at room temperature.

Apparatus and Procedure: After curing, the assembly is placed in the holding device shown in Figure 2, (using the $\frac{1}{2}$ " projections for handling). The holding device has previously been mounted in a Riehle Cement Testing Machine, as shown in Figure 3. An Ames Dial is mounted so that the actuating member projects through the hole in the top specimen and rests on the bottom specimen with the dial set at its mid-point. Space inside the assembly is then filled with water through the hole in the top, and kept full until the test is complete.

The pulling mechanism of the Riehle Machine serves to pull the panels apart at the rate of 0.01" in fifteen seconds, the joint being constantly observed for seepage of water. The distance which the specimen may be pulled apart without water leakage is the measure of the stress which the material will withstand. The type of failure is recorded, since some materials fail at the junction with the enamel, while others fail within the material.



Slump test

This test is used to evaluate the ability of a caulking compound to remain in a vertical joint.

Specimen: Ground coated test channels of shape and dimensions shown in Figure 4 were employed. After thorough cleaning with naphtha the $\frac{3}{8}$ " semi-cylinder is filled with the caulking compound, which is cut sharply at the reference mark. All excess compound is removed from the exposed surfaces of the test piece to avoid any possible restraining action from dry films of this material. Tests should be made in duplicate on adjacent specimens.

Test Procedure: Prepared specimens are supported in a vertical position in an electric oven as shown in Figure 5. Here they are heated at a constant temperature of 50°C . (122°F .) for three hours, after which they are removed and the distance the material has sagged below the reference mark is measured and recorded.

Service and exposure tests

Natural service tests are the most practical means of evaluating a material of this type. It was decided,

therefore, to simulate service conditions as closely as possible in the exposure tests.

Specimens: Panels six inches wide by eighteen inches long, enameled with one cover coat over ground coat, were mounted as shown in Figure 6. The width of the joints was $\frac{1}{4}$ ". The horizontal joint between the upper and lower rows of panels and also a small portion of the lower end of the vertical joints of lower panels were filled with a stiff knife-grade caulking compound so as to support the column of gun-grade compound in the vertical joint above.

The enamel surfaces which came in contact with the caulking compounds were carefully cleaned with naphtha in order that adherence might be a maximum. Care also was observed in waterproofing the mounting board and uncaulked boundaries of the panels to prevent destruction as a result of the filtering of water behind the joint.

Test Procedure: The specimens, as described, were subjected to outdoor exposure for a period of four years, with inspection data recorded at the end of ten days, 140 days, 8 months,

20 months, 2 years and 4 years respectively.

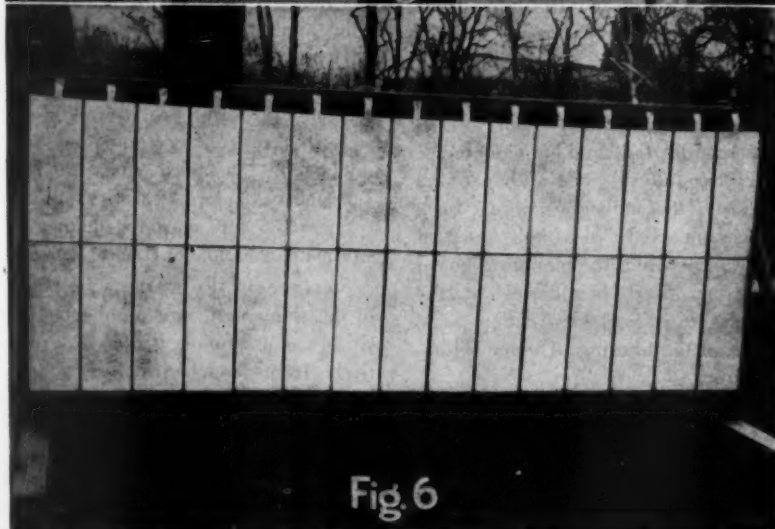
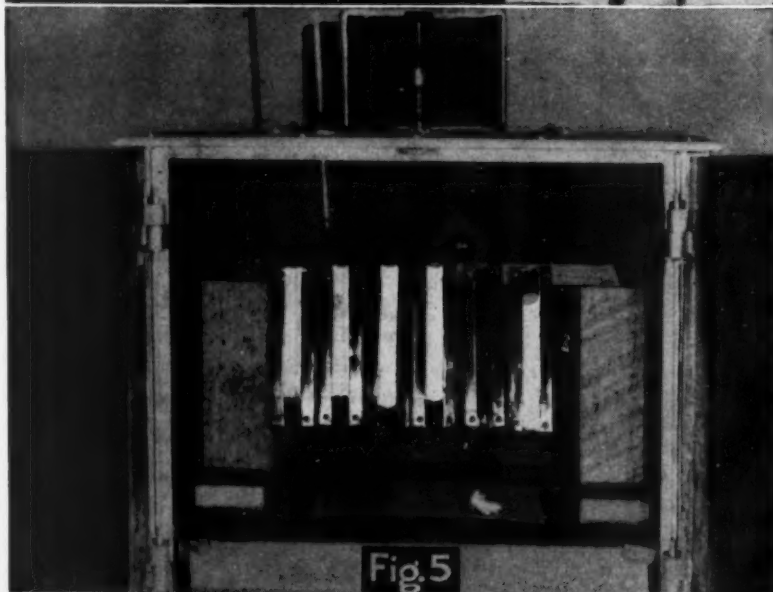
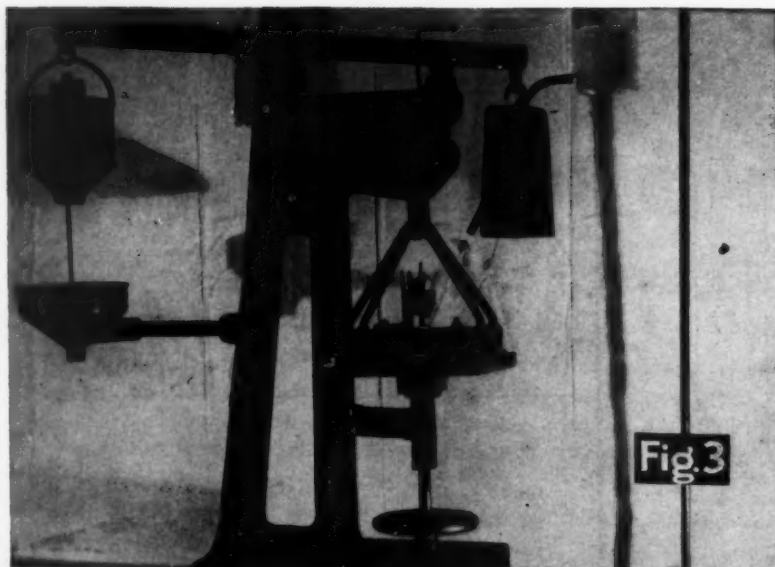
General conclusions

The higher the strain deformation the better the compound from this point of test. Sixteen out of the twenty-five compounds tested for strain had a deformation of 0.10" or above. (Nine of the materials tested failed by pulling away from the enamel.) Therefore, this degree of deformation would seem to be a reasonable minimum value. Compounds having deformation values equal to, or higher than this should be acceptable under this test, provided the joint fails in the caulking compound and not at the enameled surface. The Bureau of Standards test for caulking compounds for masonry allows a strain deformation of 0.05".

Slump Test: From the standpoint of the slump test, no slumping is desirable. Compounds which slide entirely from the channel of the test piece should not be accepted.

Of the twenty-five specimens tested, three showed failure by falling away from the test piece.

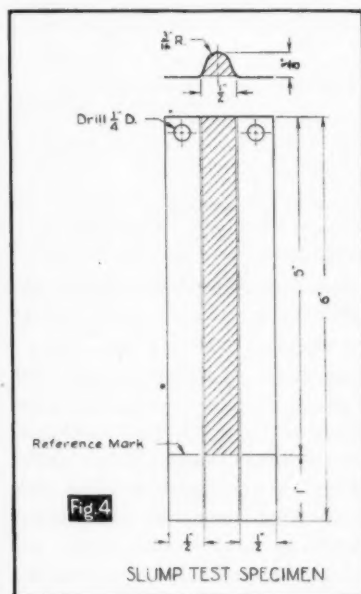
Exposure Test: When interpreting



the data it must be kept in mind that no quantitative method of evaluating these materials was available. Hence, it was necessary to rely on observation which is primarily qualitative. Because of this, conclusions have been based on outstanding, readily observable differences, with ratings of good, fair, poor and bad.

At the end of ten days only seven of the twenty-four compounds had shown no change, but sinking (S) and horizontal wrinkling (HW) should not be considered as serious. Vertical wrinkling (VW), however, was serious. Three compounds, therefore, were considered unsatisfactory after ten days exposure.

At the end of 140 days some ma-



terials had developed poor adherence, and three were added to the list of unsatisfactory materials.

At the end of eight months eleven were considered to be good. It should be noted that this eight month period covered the fall and winter of 1939-40 when the winter was quite severe.

After twenty months seven compounds were still good.

After two years the good ones had dwindled to four.

After four years only two of the compounds tested were considered good. Note: There was very little

For concluding comments and data chart
turn to Page 52 →

NOVEMBER • 1944 finish

The enameler's goal

in which an enamel technician discusses the prospects for the industry,
based on current technological developments and personal attitudes

By Dr. G. H. Spencer-Strong • DIRECTOR OF RESEARCH, PEMCO CORPORATION
BALTIMORE, MARYLAND

THE history of many industries has shown a four phase life cycle —(1) development, (2) rapid growth, (3) slackening of growth and (4) continued growth or decline. Phase three is the critical period. Either the industry will resume its growth and, to some extent, its expansion, or it will begin to go backwards. Continued improvement in products, ability to meet competition, and new product uses are the determining factors.

The fact that the enamel industry reached this point in its existence just in time to be temporarily put out of existence by the war, while competitive industries such as the light metals and plastics received what appeared to be a tremendous stimulation from the war effort, has caused a number of pessimists to write the enamel industry off as dead. "How," they ask, "can an industry which has been almost completely non-existent during the war years hope to start from scratch and compete with industries which have not only never stopped operating and developing, but have actually been pushed ahead at a speed far beyond their normal rate of development?"

Analyzing an industry

The answer to that question lies in an analysis of the industry—what are its goals, and why? What has been done during the war years to help it on its way? Far from being dead, the enamel industry, at the present time, is exhibiting the most lively interest in new developments of all types that has been shown in many years.

Plants ripped out or partially dismantled for war production must be replaced, giving an opportunity for modernization and introduction of the latest developments. New build-

ings and equipment constructed for war use will be available for peace time operations so that many firms new to the enamel industry are now interested in the installation of enameling equipment.

Those few enamel plant operators who managed to maintain their operations during the war are just as interested in plant improvement, new processes, and new materials as are the operators who are faced with complete reconstruction of their plants. The industry is in a very healthy state of mind insofar as desire for improvement is concerned. The pertinent question, therefore, is — what improvements are desirable and what has been done about them?

The enameler's dream

A research man was once asked just exactly what, in his opinion, it was that the enamel industry wanted. His answer was that what the enameler wants is a super, super-opaque enamel with an opacity of 85 per cent or more, "AA" acid resistance, a Moh hardness of 7, freedom from all defects—applied direct to the steel at a thickness of less than 4 mils and matured by the heat of a lighted candle.

Some of the properties of the "dream enamel" may not be available for a long time to come. However, the closer the industry can come to achieving its goal the greater will be the usage of the product and the more secure will be its future. An enamel matured in the heat of a lighted candle appears a little unreasonable in view of the melting temperature of the lowest melting silicate eutectics. However, minimum maturing temperatures mean lower furnace costs as regards initial cost, operation and upkeep. They also mean protection

against heat induced warping and sagging and tend to increase production rates. Light application weights mean increased production, simpler operation, improved physical properties and decreased failure in the field; freedom from defects means simplified and uniform production; maximum scratch hardness will give improved performance and lower shop damage; workable acid resistant coatings will give improved performance in the field and a simplification of inventory; application direct to metal will make possible ultra thin coatings, simplified shop practice and reduced inventory; super-super opacity is desirable for thin coatings and helps overcome the competition of organics.

These are the goals towards which our industry has been striving. Every step forward has given rise to growth and expansion. The speed of our continued progress will determine our success in the future.

While we may speak of the enameler's goal as an enamel, it must be borne in mind that it is a *finished product* and not a frit which we are considering. The attainment of the goal will require close coordination and control of all of the factors entering into the manufacturing process—design, metal, fabrication, enamel frit and enamel processing will all be of equal importance, and the neglect of any part of the operation, regardless of how painstaking the work in the remainder may be, will probably result in failure. Let us consider, therefore, the situation as it exists today with some of the items which may affect us in the very near future.

The problem of design

Design is ordinarily rather far removed from the average enameler

until he has thrust upon him some product which, because of its contour and radii, he is unable to coat. Designers in the past have complained because porcelain enamel can not be applied to surfaces designed for organics. Cooperation and education have solved the problem in many plants in the past and will continue to do so in the future. New spraying techniques now under investigation may help to solve some phases of the problem.

Enamellers have voiced many complaints about metal in the past and it is certain that the enameler's goal can not be reached without the highest type of base metal and that of the most uniform quality. The ultra thin cover coats applied direct to the metal require enameling stock superior both as to composition and uniformity to that supplied in the past. It must be remembered that there will be no ground coat to hold down and cover up defects arising from metal, fabrication and cleaning.

Fortunately your steel suppliers are well aware of the problems facing the industry. They are vigorously pursuing extensive research programs designed to improve both the quality and uniformity of enameling iron. The task is difficult and complicated, and although the results look very promising it is too early to predict just what the results will be and when they will be available in quantity. Regardless of the outcome the results of the present researches on enameling iron can not help but give an iron which will be superior to that which was available in the past and which will help reduce enamel rejects regardless of whether the operator wishes to apply a white cover coat directly to the metal or use the conventional blue ground coat.

In regard to fabrication

Aside from the mechanical aspects, the problem of care in handling and that of drawing compounds, leave much to be desired. The enameler is going to be expected to produce a super deluxe product and he will not be able to do it if the parts are scratched, dented or have iron particles pressed into their surface. Fur-

ther, a minimum of metal working will be desirable.

Research work carried on in recent years has shown that the treatment of ware between the fabricating shop and the enameling shop is responsible for a great many defects previously unaccounted for. The joint committee of the Frit and Porcelain Enamel Sheet Manufacturers, in their publication on the preparation of metal for porcelain enamel, recommend very specifically that drawing compounds



Dr. Spencer-Strong.

should be removed from the ware as soon after fabrication as possible and the ware stored in an oil-free condition. If this is not possible the Committee recommends pre-cleaning with a solvent to remove metallic soaps prior to the normal pickle cleaning operation.

In regard to frits

There has been continuous development and improvement in the past 30 years. Maturing temperatures have been decreased materially; opacity has been greatly increased; acid-resisting frits have been developed; and the workability and freedom from defects have been greatly improved. Starting with a pre-war trend the zirconium opacified frit has almost completely displaced the conventional antimony opacified frits during the war years. This enamel, with its exceptionally high covering power, broad burning range and good workability, has sold itself to many enamellers and its continued increased use is to be expected.

In regard to the low temperature maturing enamels, we are limited at present to the available low melting silicates. It may be possible sometime in the future to develop enamels which mature in the range of 1200 to 1300° F. Non-silicate materials are available which fuse at considerably lower temperatures than these but, unfortunately, they either have extremely high lead contents or are so soluble as to be unworkable.

In recent years the enameler has been able to reduce his firing temperature from 1750 to 1800° F. down to a range between 1500 and 1600° F. A further reduction in maturing temperature may be possible, especially insofar as one coat whites directly to the iron are concerned since it is much simpler to reduce the maturing temperature of a white cover coat enamel than it is to reduce the maturing temperature of a ground coat. The trend is definitely toward lower temperatures and many enamel plant operators today are maturing their ground coats and cover coats at the same temperature.

Over a long period of years the enameler's goal had been a so-called white ground coat enamel to replace the blue ground coat. Experimental evidence is available which shows that, providing such a white ground coat has sufficient opacity, increased total reflectance may be obtained with lower application weights. Great progress has been made but to achieve the ultimate we will require a finish coat applied direct to the metal, thereby eliminating at least one complete set of enameling operations and in many cases two complete sets of spraying, drying and firing operations. Such cover coat enamels applied direct to the metal are available but at present require special enameling iron and the use of a carefully controlled nickel pickle.

These enamels will give a one coat finish with a reflectance equal or better than a normal one coat super opaque enamel applied over ground coat with a total thickness of 6 to 7 mils. Since they must do for both ground coat and cover coat, such enamels naturally require the highest type of steel and the greatest care in

processing. The old time enameler was quite literally able to cover up his mistakes by adding additional coats of enamel. This rework not only caused complaints from the field due to chipping and other failures, but also made it extremely difficult for the production management to closely plan production operations. The elimination of variable production is one of the major requirements for the future success of the industry.

It has been proved in the past that reduced application weights were highly desirable. Everyone knows that a glass stirring rod of the type normally used in the laboratory, which has a diameter of approximately $\frac{1}{8}$ ", is a rather brittle article and can not be bent. However, if we apply the heat of a burner to the center of our stirring rod to draw it out to a fine thread, the thread becomes very flexible and may be bent, twisted and otherwise mistreated to a considerable extent before it will break. The same effect is apparent with porcelain enamel as the coating thickness is reduced.

New physical characteristics

One of the interesting uses for

porcelain enamel which has arisen during the war is concerned with the application of very thin coatings for certain specific applications by a Government Agency. These are covered by some extremely rigid specifications. Upon first glance most enamblers felt such an enamel was entirely impossible. However, when the enamels were applied at the ultra thin coatings required it was found, to everyone's surprise, that porcelain enamel passed every one of the tests specified with "flying colors." Cover coat enamels applied directly to the metal show many of the remarkable physical characteristics of these special bulkhead enamels insofar as resistance to physical abuse is concerned.

Since these enamels have been in existence but a rather short time it is not to be expected that they may be put into mass production immediately without careful study. Revision of control and, in some cases, processing operations may be required. It is believed, however, that the industry has made notable strides in this respect towards the achievement of this goal.

Insofar as acid-resisting enamels

are concerned, enamels are available which may be satisfactorily used as a dust coat over the white applied direct to the metal, giving a thin enamel with an acid-resisting surface. It may be anticipated that the time is not too far distant when acid-resisting enamels may be formulated which can be applied direct to the metal.

In regard to plant processing, a great amount of interest has been shown in the developments which have taken place and it may be said at the present time there is interest not only in the developments but in developing.

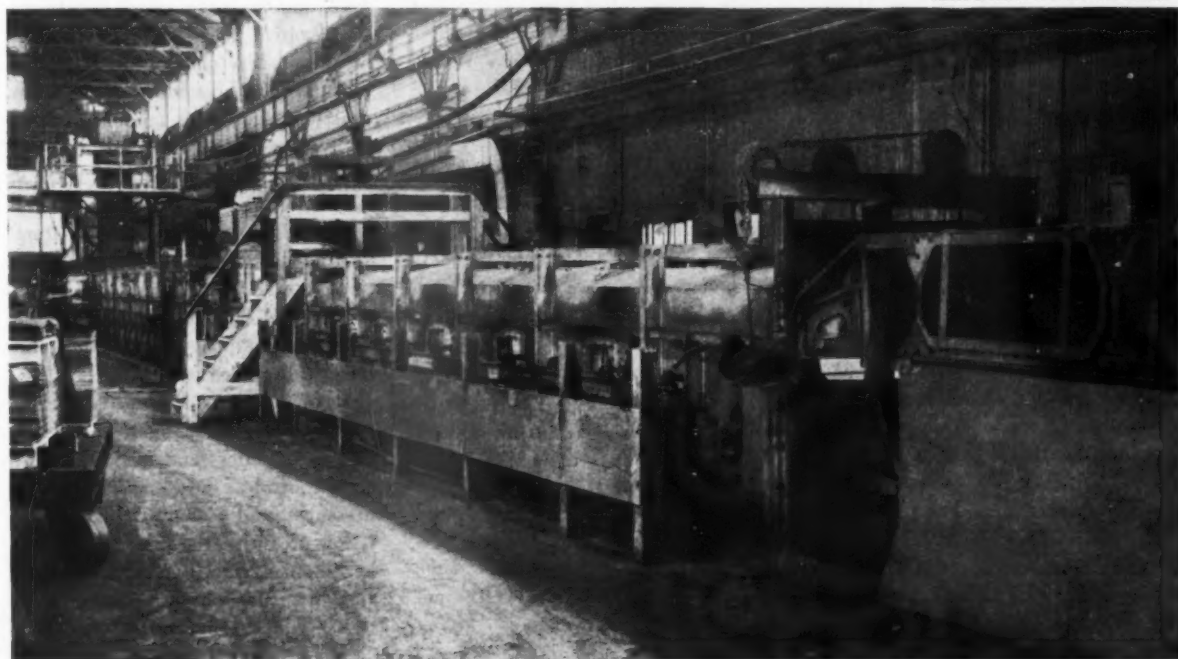
The pickling operation

In the normal enameling shop pickling has always been a headache. In fact, whenever a shop is in trouble usually the first place a serviceman will visit is the pickle room.

There is in process at the present time, work on four different developments designed to improve the pickling process. Two of these, the gas pickle process and the so-called Kolene process, represent departures from the traditional method. The other two developments represent improvements in the existing pickle

This illustration shows an installation of gas pickling equipment as used in a steel plant for the pickling of cold-rolled steel strip to prepare it for subsequent coating. While experiments are encouraging, the equipment producers do not as yet recommend this process for enameling.

PHOTO COURTESY SURFACE COMBUSTION.



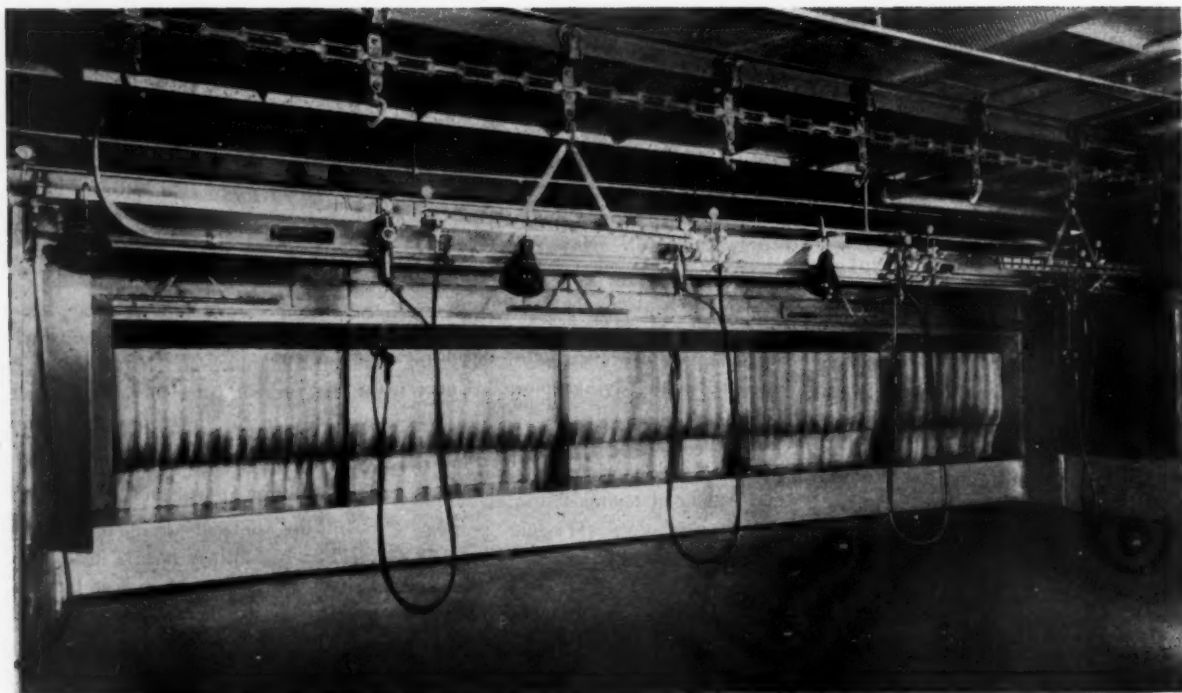


PHOTO COURTESY BINKS MANUFACTURING CO.

The water wash spray booth represents one of the refinements in enameling equipment that had gained rather wide acceptance in the enameling field prior to the war. It may be expected that many other items of improved equipment will find increased use in enameling plants now on drawing boards.

method. Insofar as processing is concerned, the salvation of our industry lies in the intelligent utilization of such improvements as they are proved.

It will be noted that the booklet on the preparation of metal for porcelain enameling by the Frit and Steel Manufacturers joint committee recommends a nickle pickle and, further, that at present a nickle pickle is recommended for the use of white applied direct to steel—be it a ground coat or a finish coat. Present indications are that pickle room control will have to be even tighter than formerly, especially if the traditional methods are followed. For example, when the nickle pickle is used with a normal ground coat, variations of the nickel pick-up of the steel, due to various factors, are not usually noticeable. Where much closer pickle control is required than is the case with normal ground coat, it has been disclosed that there are a number of factors which interfere with the deposition of nickle and which are not readily discovered.

For instance, it has been found that the presence of a certain organic

compound on the steel, in such a slight amount that visual inspection failed to disclose it, practically completely inhibited the deposit of nickel on the surface of the metal.

New spraying developments

The industry has been progressing with the introduction of the water washed spray booth and the spraying room maintained under pressure. The automatic spraying machine has also been a great improvement. One of the chief drawbacks of the enamel spraying operation has been the problem of overspray. The spray gun which we use today in the enamel shop is the same as it was many, many years ago. The operation consists of forcing enamel into the gun at fairly high pressure and blowing it out of the gun in blobs at a very high pressure, with the result that one-half of the enamel does not find its way to the part being sprayed. Very often the results do not produce the finest kind of a surface. Furthermore, there is so much enamel applied at one time that there is a tendency for the enamel to build up over radii, giving rise to chipping difficulties.

Considerable interest has been aroused in the so-called electrostatic spraying of enamel. In this operation a finely atomized spray of coating material is discharged between the wire grid electrode, which constitutes the positive pole of an electrostatic field, and the ware, which constitutes the negative pole. The particles take on the positive charge and are thereby pulled to the surface of the ware, greatly reducing the amount of overspray. One of the secrets of this operation lies in close control, both of fluid and atomizing pressures, and very fine atomization of the coating.

It has been considered highly questionable as to whether or not porcelain enamel could be handled in such a manner. Much to everyone's surprise, it has been found that it is possible to atomize porcelain enamel as finely, if not more finely, as in the case of organics; and further that by close control of fluid and atomization pressures, and maintaining sufficiently low pressures, the same results may be obtained with enamel as are possible with organics with the electrostatic field. It has been found that

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The how and why of sign advertising

By Ken M. Davee • DAYEE, KOEHNLEIN AND KEATING, CHICAGO, ILLINOIS

PART VIII • Distributing signs to dealers



Part VIII deals with the terms on which various types of signs are allocated to certain types of dealers, with the arrangements for payment or cost-sharing that may be made between dealer and advertiser, and with the problem of selling dealers on the value of sign advertising.

Most companies furnish non-illuminated signs without cost to their dealers and distributors. In such cases the signs remain the property of the advertiser, and upon discontinuance of the advertiser's line, the signs are reclaimed.

The cost of illuminated signs, in the usual instance, is shared by the advertiser and the dealer. The most popular arrangement is one in which the sign is leased from the advertiser.

Other advertisers stand none of the cost of dealer signs, but they do make arrangements with a supplier for a standardized sign to be produced in quantity and offered to dealers at the reduced price which the economies of quantity production make possible.

Who should have illuminated signs

If a dealer is open at night at a location that has heavy after-dark traffic, an illuminated sign at his place of business is obviously a good investment. However, if he is seldom open at night and there is little traffic, an illuminated sign is unnecessary and uneconomical. For instance, there isn't much excuse for an illuminated sign over a building supply yard which closes the day's business with the regular working day. On the other hand, a service station may do a substantial part of its business after dark and need an illuminated sign as well as a general high level of illumina-

tion to stop a satisfactory volume of traffic.

The importance of daytime traffic must be considered in supplying every dealer sign. If the bulk of the business comes in the daytime, the use of lighting equipment that detracts from the visibility of the face should be avoided.

Working out a proper sign lease arrangement

The advertiser-dealer sign arrangements encountered in a study of a large number of sign users were all somewhat similar. Most signs for which a charge was made were leased to dealers. The leases called for various considerations, all the way from a single dollar necessary to fulfill the legal requirements to the full cost of the sign. The usual lease arrangement contains these five provisions:

1. *Payment of freight on the sign.* In the case of the larger illuminated signs, the dealer usually pays the freight.
2. *Erection of the sign.* Ordinarily, the dealer handles the erection. Where the cost of the erection is included in the cost of the sign, the sign supplier reserves the right to specify the erecting company.
3. *Maintenance of the sign.* In most cases the dealer agrees to maintain it. However, many advertisers make contracts with maintenance companies that handle cleaning and repairs. This cost is usually paid by the dealer but in some cases advertisers share it.
4. *Dealer's obligation in case the advertiser's line is discontinued.* In the usual lease, the dealer agrees to take down the sign and prepare it for shipment.
5. *Advertiser's refund to the dealer*

in case the line is discontinued.

A refund plan may be set up to cover sign value which the dealer has paid for and hasn't used.

Such a lease arrangement legally establishes the advertiser as the owner of the sign. This is essential. One manufacturer who formerly furnished signs to dealers without charge found that when a store changed hands the new owner frequently claimed ownership of the sign. To establish his claim, this manufacturer affixed a metal plate to the sign. But this was readily removed and local courts sometimes held that since the sign was fastened to the property, the new proprietor could claim it. Auction companies, called in to liquidate a bankrupt stock, also made use of the sign and sometimes moved it from store to store, using the nationally known name as a drawing card.

And so, to prevent these impositions, the lease arrangement was worked out. For a consideration, the dealer agrees to pay the freight and to erect and maintain the sign as long as he has the franchise; he also agrees to prepare it for shipment back to the owner as soon as his franchise is cancelled.

How sign cost is shared

When an advertiser buys signs in quantity he usually obtains them at a price as low as one-half of what a similar sign would cost a dealer if purchased locally. This saving is due principally to the economies of large-scale production, and usually the sign purchased in this way is a better sign because more planning and more experience has been utilized in its production.

This in itself makes the sign reasonable enough in cost. Some advertisers, then, pass half or less than

half of this cost on to the dealer. Norge, Westinghouse, and many others, together with their distributors, underwrite the cost of identification signs until the dealer pays scarcely more than enough to indicate his interest in the sign. Signs that cost as much as \$125 reach the dealers of many companies for as little as \$15 to \$25.



"... at a location that has heavy after-dark traffic an illuminated sign... is obviously a good investment."

An advertising executive of one of the large refrigerator manufacturers holds that most advertisers would be glad to furnish such material without charge, providing they could be sure it would be properly used. They find, however, that large quantities of catalogs and handout literature, if distributed free, will lie unused in their dealers' storerooms. Signs may be found in the same place. Dealers have been known to write or wire (collect) for more material rather than go to the trouble of looking up the stocks they have in their own storerooms. So, to reduce this waste, advertisers began charging for all kinds of promotional material, signs included. The price that should be charged, as this executive sees it, should be the mean between a price just high enough to create an impression of value and one not so high as to prevent a satisfactory quantity of material being used.

The mere fact that a dealer pays \$15 for a sign worth \$125 is no assurance that he respects its value. He usually has had little or no experience in buying signs. Moreover,

he feels that since the sign carries the name of the national advertiser, it really is working for the advertiser, not for him. Therefore, the dealer reasons, why shouldn't the advertiser pay for this sign. In other words, regardless of the price asked — or if no price at all is asked, the sign must be sold to the dealer. Otherwise its value will not be fully appre-

*Location:
Jackson Avenue and Huron Street, Toledo, Ohio.*

*Sign by:
Ross Sign Service.*

FINISHFOTO

ciated and if it is an illuminated sign it will be out of repair or turned off half the time when it should be in operation.

In selling signs, recognize the dealer's viewpoint

The first step in selling signs to dealers is the preparation of a plan that provides for acquainting both your salesmen and your distributor's salesmen with the benefits that the dealer gets by displaying your sign. Usually the recognition that he needs a sign doesn't originate with him, and he will almost never buy your sign of his own volition. If he buys a sign, he will employ it to display his own name. Therefore, your sign must be sold to him.

There are sound, money-making reasons why he should display the signs of the manufacturers whose lines of nationally advertised goods he carries. Behind those names are literally thousands and thousands of dollars spent in building public acceptance — advertising that directs readers to "stop at the sign of the Blank dealer" to buy the products.

Nine times out of ten more people in the dealer's community are familiar with the nationally advertised name of the product or its manufacturer than are familiar with the dealer's own name. This fact can be substantiated by actual consumer tests, and there is plenty of supporting evidence at hand in the figures on the advertising impressions created by the national advertiser. Use the facts and figures for your company in selling the sign to the dealer.

The dealer's name should be displayed, of course. But he will want to give dominant display to the sign that will make him the most money — the sign that will bring in the most customers. And that is the national advertiser's sign.

The dealer's usual belief that the national advertiser gets the benefit from the sign on his premises overlooks the obvious truth that every sale made in the store by the national advertiser means profit for the dealer. In addition, the dealer often believes this: "My customers would buy the product here anyway. They trade with me regularly."

More business requires new customers

In many cases this may be true, but you can point out that increases in his business depend for the most part on getting new customers into his store. This may mean — and usually does — attracting customers who ordinarily buy from another dealer. The way to accomplish such increases in volume and profit is to bring in the new customers by displaying the nationally advertised product name — by means of the dealer sign. After the sign has accomplished this essential task, the dealer will have an opportunity to make these customers "regulars," through giving them better service than the competitive dealer does. But he can't do that until the sign has done its job.

Make this important point an essential part of your sign-selling sales presentation to the dealer. In further answer to the "regular customer" belief that he holds, you can show that the only other way to increase

his business is to boost the amount of goods sold to the "regulars." Unless he has a sign that ties in with the national advertising and tells his customers that he sells *Blank* Products, he's bound to miss a good many sales even to the steady customers.

For instance, Woolworth's sell General Electric incandescent lamps; so does the hardware store on the corner. Regular customers of the hardware dealer may buy their nails and doorknobs and window screens from him, but never know that he sells G-E lamps, if he doesn't tell them by means of a sign or some similar identification. The lamps they buy at Woolworth's don't bring him any profit, no matter how cordial a relationship he maintains with his customers.

The dealer's store is a product package

Another selling point is the package analogy. Suppose you were trying to persuade a grocer to use a sign. You could ask him whether he would try to sell a famous, heavily advertised brand such as "Wheaties—the Breakfast of Champions" in a plain, unlabeled package, or a package that simply said "breakfast food." Of course he wouldn't. Millions of dollars have been spent to create the public demand for Wheaties and recognition of the brand name; the grocer couldn't afford to throw away that value.

You could then go on to show him that his store serves as a package for the wide variety of products he sells. He must let people know what they'll find in the package, particularly the products that bulk largest in his volume and profits. So it's perfectly logical to mark this package—the store—with the valuable brand names for which his customers are looking. The product sign is an essential, just like the name on the Wheaties box.

Selling the specific values of your sign

After demonstrating in these ways the value of displaying the nationally known name, selling always from the dealer's own point of view, show

him the value he's getting in your particular sign. This is particularly important where the advertiser is not nationally known. Let the dealer know about the cost of a sign such as he is being offered, if it were purchased locally. Outline the amount of planning and work that went into its development—the reasons for the color selection and the design, the reasons why it is the most effective point-of-sale advertising that could be developed. Take the dealer into your confidence in this discussion—both in the sales presentations made by your salesmen when they call on him and in the sales promotion material used to sell the sign. Take him behind the scenes and show him why your planning means money in his cash register.

When you do this type of selling job in placing your dealer signs, you'll be reducing wasted advertis-

ing effort to the minimum, proving to the dealer that you're on his side, and gaining his understanding and good will.

Should the dealer's name be included?

Before many national advertisers had built up the recognition and acceptance value that their names now enjoy, dealers would object to displaying a sign that didn't include their own names as well. At that time, the name of the dealer may have been equally as influential in selling goods as the advertiser's. Today, of course, that rarely is true. Brand names are relied on to a much greater extent in many lines than the reputation of the dealer.

The usual custom today is to provide an opportunity for the dealer to add his name to the national sign on a separate panel. The cost of the

"... giving the salesman the same sales support you give him in selling your product will result in getting more signs placed and giving your product better identification."



additional panel is quoted separately. While many advertisers still make provisions for furnishing the dealer's name panel as part of the sign, there is plenty of ground for believing that such a service is no longer necessary.

One of the leading sign users who had been offering a separate panel imprint as a part of the regular sign quoted it separately in one year's catalog. When sign users saw the additional cost of separate individually manufactured name plates, they decided to get along without them. This doesn't mean that their stores weren't identified with the owner's name. The name usually appears on other signs, the canopy or window anyway. And when they had an opportunity to consider the additional cost, they didn't order the nameplates. Only a few were ordered all year, and the second year the nameplates were dropped out of the catalog entirely.

The explanation as to why the nameplate isn't included with the sign can be readily made by a salesman who understands the facts. He should simply point out that the dealer's store is already well identified with his name (if that is the case), and that the dealer can save what the additional nameplate would cost.

When signs should be offered to dealers

Adequate identification should be provided whenever a new franchise is let to a dealer. In some cases, however, because the value of the dealer isn't established at first, or because he isn't in a position to erect the identification he needs, a new dealer isn't properly identified. Such dealers should be kept on the distributor's books for followup at the earliest opportunity.

Many advertisers, in order to spur distributors to make periodic surveys of their dealers' sign needs, have special sign promotions. A new sign will be offered, or the price will be reduced for a limited time on the regular sign, and a special drive made to get new signs in place.

Westinghouse, among others, enjoyed considerable success with spe-

cial promotions on signs at special prices. On one occasion they offered small signs for display inside windows as premiums to all dealers who attended a sales convention. Aggressive promotion tactics, accompanied by sound salesmanship covering the value of identification signs, have helped this company do a commendable identification job.

Support salesmen with good selling copy

Organizations that employ masterful advertising copy giving plenty of reasons for buying their product, often publish sign and promotional catalogs with the dullest, most unimaginative copy giving the dealer no reasons at all why he should buy. Here is an example from the sign offerings of one of the leading automobile manufacturers:

"This beautiful sign has been designed to meet a new popular demand. Porcelain enameled steel faces and ornamental decorations shown in illustration provide a lifetime finish. The color scheme is jet black background with steel gray borders, outlined in white . . ."

Suppose they advertised their automobiles in terse technical description! But this sign user is not the exception. One of the larger appliance manufacturers advertises a standard identification sign like this:

"Large horizontal or vertical outdoor neon sign. (Sizes given). Approximately 125 watts per hour. Both signs are double-faced with neon letters 12" high spelling ----- Choice of new power green or red Neon . . ."

In neither of these advertisements is there a word about what the sign will do for the dealer — what he will get in the way of additional customers, how this sign will tell those in the stream of traffic passing his door that here is the store where they can buy the product they saw in the national advertising.

Advertising with a definite appeal for the dealer — advertising that helps the salesman sell a dealer on identifying his store — is represented

by this sample from a Pittsburgh Paint bulletin:

**"Blazing Neon Signs
Spotlight You As a Pittsburgh Dealer!"**

Make You An Important Part of the Entire Pittsburgh Drive for Profits.

For Your Store Front, this giant Neon sign places your "ad" right in the center of the population — 24 hours a day. Highlights you as a dependable Pittsburgh dealer. Offers friendly welcome to all . . ."

It continues to tell the dealer what it will do for him and then it closes the sale by telling him, in typical and tested mail-order style, exactly how he can get this sign. Armed with that type of promotion, the salesman is equipped to call on his dealers with a real sales story. He can't help but get across to his customers the importance of proper identification.

Sign catalogs should show the signs in color; a true conception of what they will look like can not be gained otherwise. Photographs of stores before and after the identification sign was erected — both day and night views, if your sign is illuminated — will help your salesman or your distributor's salesman clinch their story of proper identification. Any effort spent in giving the salesman the same sales support you give him in selling your product will result in getting more signs placed and giving your product better identification.

Employ showmanship in introducing a new sign

When you have developed a new sign and are ready to introduce it to the sales force, adopt a little of the same showmanship you would use in introducing a new model. If the color scheme or style of lettering has been changed, explain why. Build up the skill of the men who were called in to develop the new sign. Give your men solid information as to why the new sign was developed and create enthusiasm for it. If you do this job thoroughly you will find it reflected in the work your salesman do when they call on dealers. (Part IX in Dec.)

Eastern enamellers meet in Baltimore

THE second wartime meeting of the Eastern Enamellers' Club was held at the Lord Baltimore Hotel, Baltimore, Md., on Saturday, September 30.

Aside from the usual club business, principal interest in the meeting was centered around the program consisting of four talks on various phases of industry activity. The speakers and their subjects were:

B. F. Lewis, Northwest Chemical Company, Detroit, Michigan—"The Application of Low pH Cleaning."

Captain J. B. Willis, Pemco Corporation, Baltimore, Md.,—"Electrostatic Spraying."

Howard Michel, Baltimore, Md.—"Architectural Porcelain Enamels."

Edward Mackasek, Porcelain Enamel Institute, Washington, D. C.—"Widening Horizons for Porcelain Enamels."

Low pH cleaning

The illustrated paper presented by Mr. Lewis was well received. Unquestionably one of the phases of enamel processing that is receiving greatest attention throughout the industry at this time is the question of metal preparation.

This discussion, which was similar to that presented at the Chicago District Enamellers Club at the April 22nd meeting, may be reviewed by referring to Mr. Lewis' article entitled "The Application of Low pH Cleaning to Porcelain Enameling," (See May *finish*).

Electrostatic spraying

In this talk Mr. Willis discussed the problems of overspray to which the porcelain enameler has become accustomed through the use of conventional methods and equipment. Said he, "Experience has shown that even in the best run plant as much as 50 per cent and sometimes even greater amounts (of enamel) which is put through a spray gun never reaches the surface of the ware. While it is true that a very large portion of this material remains in the spray booth and can be reclaimed, it represents a considerable economic loss since not only material but the time and labor required to prepare the milled enamel are involved. . . . Obviously, any procedure which would minimize losses due to overspray and simplify salvage or reclaim should be received by the Industry with open arms."

In this discussion reference was made to experimental work with electrostatic spraying of porcelain enamels and a brief description given of equipment and methods. (This spraying process is not as yet available commercially to the porcelain enameling industry.) *Finish* plans to keep its readers posted with authentic information concerning this development as it is made available.

Architectural porcelain enamels

Mr. Michel presented an interesting talk on architectural porcelain in which he said, "Authorities on

building construction, men whose job it is to know, predict building operations running into billions of dollars per year, with nearly half of this total expected in commercial types of construction. Competition will be great for those dollars. So far as we are concerned we will not only compete as one enamel company with another, but the enameling industry will have a real job competing with the romantically presented stories of aluminum, stainless steel, plastics, and any dark horses which have as yet not appeared. Aluminum and stainless steel, as we have known them in the past, were complementary to porcelain enamel, not competitive. War stimulated productive capacities, however, are now so high that every possible outlet must be found, and if we allow it, we will certainly be pushed around.

"Our strongest fort is in the simple fact that no other known material has as much to offer in the way of physical properties. Color, in infinite variety, fabrication into practically any desired shape, design reproductions, gloss or satin finishes, permanence—all coupled with no maintenance beyond an occasional washing, and reasonable initial cost."

In his talk Mr. Michel stressed the importance of a national promotional program and, above all else, the importance of winning the recognition and preference of the architectural profession.

To Page 54—>

A part of the group in attendance at the Eastern District Enamellers' meeting in Baltimore.





Howard Michel, whose interest is architectural porcelain, and "Pete" Buettner of Pemco Corp.



EASTERN

One of the speakers was "Jimmy" Willis of Pemco. (Formerly Captain Willis — see September Finish.)



Baltimore Enamel and Novelty Company's works manager, C. C. Webb, and vice president "Bill" Winand.

J. M. Seasholtz & Sons, Inc., was well represented by brothers "Ed", Ralph and Paul Seasholtz.



Roberts & Mander's "Ed" Adams.

Caloric Gas Stove Works was represented by Clarence Kone-mann, enamel plant supt., and "Nate" Klein, president.

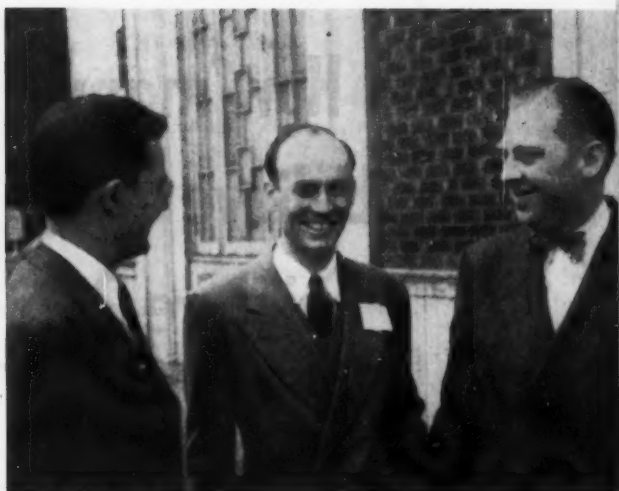


MEETING

C H I C A G O



"Bill" Plankenhorn, Federal Electric Co., Chicago Club's program chairman, enjoys the proceedings.



Ing-Rich's Clark Hutchison, Florence Stove's Geo. Grimes and Keith Conley of Northwest Chemical.



Benjamin Electric's plant and enamel shop were represented by "Al" Meyer, Geo. Tuttle and "Russ" Hartwig.

W. W. Higgins, Club vice president, is pleased with the Chicago Club's growth.



M E E T I N G



The A. O. Smith Corporation delegation includes "Wes" Martin, Waldo Higgins, Wayne Deringer and A. C. Barzdukas.

This happy fivesome — Mark Mason, Hugo Johnson, "Pete" Reynolds, F. O. Cooper and "Rud" Porter — represent Carnegie-Illinois Steel Corporation.



How many
believe this
picture?



How women wash their clothes

a brief report on consumer habits based on research data

By Helen W. Kendall • HOME LAUNDERING SPECIALIST, GOOD HOUSEKEEPING INSTITUTE
NEW YORK CITY



Recently Good Housekeeping completed a survey of home-laundrying habits among its readers which was made to fur-

ther its own editorial program and to gather information helpful to the home-laundry equipment industry in making its own postwar plans. One thousand nine hundred and nine women helped us make this survey by answering 74 searching questions. All were members of one of Good Housekeeping's regular Consumer Panels which are carefully selected to give an adequate cross section of readers in towns and cities of every size in all sections of the country.

The distribution of this panel paralleled Good Housekeeping's total circulation within a fraction of 1%.

Among the many conclusions to be drawn from this survey there are several which we feel deserve the special consideration of home-laundry equipment manufacturers. They deal with problems or questions which manufacturers—especially washer manufacturers—should take steps to solve.

Where is household laundry done?

Fifty-one per cent of the women who answered this question do their household wash in what is probably the most inconvenient place in the house—the cellar or basement. This does not add to their liking for the job. Often it means working in a

dark, dingy, damp place, lugging heavy baskets up steep stairs, dashing up to answer the door bell, and returning just in time to hear the phone ring. Then there's the problem of Junior. Should you leave him upstairs and trust he won't tear the house apart, or should you lug him downstairs, too, and risk the hazards of his being under foot?

Although it is almost axiomatic that making it easier and more pleasant to use your product will increase its usefulness and desirability, the home-laundry equipment industry has neglected this side of its business, so far as making home laundries more convenient is concerned. It has been satisfied to let architects and builders carry the ball without support in the

way of good ideas and information. As a result, the home laundry is a Cinderella among service rooms in many houses. In contrast, witness the job the kitchen-equipment industry has done in popularizing the modern, stream-lined kitchen.

We believe that the home-laundry equipment industry has an opportunity in educating architects and builders and the general public to appreciate the ground-floor laundry and what it means in comfort and convenience to the woman who does her own wash. There never will be a better time than now, when the huge postwar building boom is still in its blueprint stage. Good Housekeeping Institute has advocated the ground-floor laundry for many years in its editorial pages. Reader response shows that many women prefer it, and put up with the basement kind only because they have nothing better. We are currently illustrating and describing a new ground-floor laundry which we designed and recently built ourselves.

The current work of the Institute of Washer and Ironer Manufacturers in the preparation of background information on this subject

is certainly a step in the right direction.

Where is personal laundry done?

Here we have an entirely different picture. More than seventy per cent of those who answered this question said they did their personal things in kitchens or bathrooms. The sad plight of a man trying to bathe or shave in a bathroom cluttered up with feminine frillies is one of our standard jokes. But we would not be amused if we made washers. Obviously it means that a great deal of hand washing is being done, and that's not good for the washer business.

What do women wash by hand?

Here is a partial tabulation of the answers to this question:

Lingerie	89%
Blouses	69%
Socks	58%
Children's Clothes	27%
Handkerchiefs	23%
Pajamas	18%
Table Cloths	11%

Although we expect women to wash their lingerie by hand, it is rather disconcerting to learn that so many still wash such sturdy things as chil-

dren's clothes and pajamas by this drudging method. Disconcerting, too, are their reasons. Fifty-two per cent who reported washing by hand believe that washers, in one way or another, are hard on clothes.

Granted that some washers are none too easy on clothes, the majority of these women own or use makes of washers which we know from long experience in our laundry laboratory can do the great mass of women's slips and blouses, children's clothes and the like just as satisfactorily as hand methods. Then how did they get the notion that they are hard on clothes?

The dangerous instruction tag

A likely answer is found in the thousands upon thousands of instruction tags which women find attached to the washables they buy. These tags advocate hand-washing to protect colors, fit, finishes, and the like. Not a word is ever said about using a washer. As a result consumers have been led to believe, consciously or otherwise, that hand-washing is preferable to machine-washing for many things.

The textile industry uses these tags



Wash by hand REGULARLY

Lingerie	89%
Blouses	69%
Socks	58%
Children's Clothing	27%
Handkerchiefs	23%
Pajamas	18%
Table Cloths	11%

Helen W. Kendall is an authority on the effectiveness in use of kitchen, laundry and cleaning appliances and equipment, and other products, such as household and laundry soaps, bleaches, bluing, starches, floor waxes, cleansers and polishes. Besides planning and writing articles on the selection, use and care of these products, for publication in *Good Housekeeping*, Mrs. Kendall is in charge of the actual-use investigations and studies, leading to more advantageous methods of their use and care, which are made in the Institute's kitchens and laundries. Mrs. Kendall's experience in this work goes back more than 15 years, so that she is thoroughly familiar with the development of most of today's household appliances and equipment and their capabilities. Her opinions are based on a knowledge of consumers' problems and requirements, as well as the work her division does in finding out, through actual-use investigations, whether products do their jobs satisfactorily.



to make satisfied customers for itself. It stresses hand-washing methods for home laundering because it is not sure of any other method. The washer industry has never attempted to prove to the textile industry that most fabrics can be washed as well and as safely by machine as by hand.

On the other hand, commercial laundries saw this problem many years ago, as it related to them, and took prompt action. For instance, when their bundles began to change from sturdy cottons and linens to a high percentage of rayons and rayon mixtures, they went straight to the rayon industry and began to work with it. As a result, commercial laundries developed a laundering seal of approval to be attached to garments which can be washed satisfactorily by their methods. In back of this seal is an adequate research laboratory where fabrics and washing methods are studied continuously. The home-laundry equipment industry needs to establish similar research facilities, so that it can work with the textile industry for tags that will say: "Wash by machine — or by hand."

Good Housekeeping's own "Facts-First Fashion Tags" now say this about all washable garments. This tag is used to identify in stores, clothes that are featured editorially in our fashion pages. The reverse side of the tag lists service qualities which we have investigated in our textile laboratory and laundries. When a garment is washable, the first

line of the tag says: "It may be satisfactorily washed by hand or machine."

This tag appeared on five colorful blouses which were featured in our September issue in a two-page article, "It's Better If It's Washable." When readers realized that these fragile-looking blouses needed no coddling their response was tremendous. Of course, we were sure of our ground because we had carefully investigated samples of the fabrics in our textile laboratory and had sample blouses worn and washed repeatedly by machine in our laundry laboratory. If the washer industry were to do work of this kind in broad-scale cooperation with the textile industry, much hand-washing would disappear.

Old habits persist

Of those who use washing machines;

85% rinse in separate tubs

36% still soak before washing

23% rub clothes before putting into washer

These figures show that women have hung on to some rather old-fashioned, strong-arm methods, for which we can't blame them too much. Many have not adopted the newer and better method of rinsing in the washer because their washers do not have a pump for emptying the tub. Those who still soak and rub clothes before putting them into the washer, don't do it for fun either. They do it

because they don't know any better way to get clothes clean. This is no reflection on the efficiency of good washers, but it is on their manufacturers. Although they have perfected the mechanics of washing to a high degree, they have neglected entirely to develop and to teach women the chemistry of washing. The two are inseparable in getting clothes clean without drudgery.

How often is washing done?

Here's another hangover from the dark ages — seventy-seven per cent who answered this question are still trying to do a heavy wash all in one day. Sixty-seven per cent have three to six loads, or as much as fifty pounds of clothes. However, it is significant to note that women who have automatic washers do not cling to the Blue-Monday habit. They report no regular wash day, because they can wash every day, if they want to, with scarcely any work or bother. As one woman said, "Words can't express how it feels to have never a washday, especially with a 3½ year old girl and a 6-months old boy." In our opinion, the automatic washer's ability to banish Blue-Monday is one of the strongest postwar sales appeals it can make.

Here's a lead for the manufacturer of the "conventional" open-tub washers as well. Sell the housewife on the idea of washing fewer clothes more often and you will help banish Blue-Monday from their minds.

Plant-wide "Job Studies" and a War Veterans plan

THROUGH experience employing physically handicapped persons during the war years, and plant-wide surveys in its 25 plants and 35 manufacturing and repair units, the Westinghouse Electric and Manufacturing Company has learned that in some departments as many as 83 per cent of the jobs can be performed by disabled veterans with limited handicaps.

Westinghouse undertook the survey to help wounded former employees returning from the war to adjust their lives to a civilian pattern. In outlining the company's policy, W. G. Marshall, vice president in charge of industrial relations, said:

"The transition period from war to peace will present extensive industrial relations problems. These problems are vastly greater than the problems involved in the transition from peace to war, for we have at once the demobilization of tremendously large armed forces and also the demobilization of a large army of production.

"We accept the responsibility to do everything possible to help our former employees, who come back to us from the armed services as medically-discharged veterans. This aid, to us, means helping these men in an unobtrusive but friendly and objective way to readjust their lives to the normal ways of civilian life.

"Too, we feel that everyone of these men want to make good on their own ability. They do not seek charity, but they want a constructive program in which any man would be proud to participate. Therefore, we have coordinated the activities of our employment and medical departments and training facilities to assure a re-employment procedure that is personalized, tactful and considerate.

"To help these men speed their readjustment to civilian life, our plant doctors and industrial relations men, many of them veterans of the first World War, are ready to consult and actively aid the new veterans."

The Company already has 1,800 war veterans in its employ, all of them either disabled in battle or medical discharges. The number is increasing daily.

Special job survey

In an effort to place such war veterans in jobs in which they show greatest promise of success, Westinghouse is making a special survey which, when completed, will show specifically each physical movement required in each of the hundreds of jobs done in the Company's plants.

The personal qualifications of intelligence and stability required to do each job adequately are also recorded

completed, figures show that 83 per cent of the jobs can be done by men with only one eye.

Eighty-two per cent of the jobs can be done by men who are deaf.

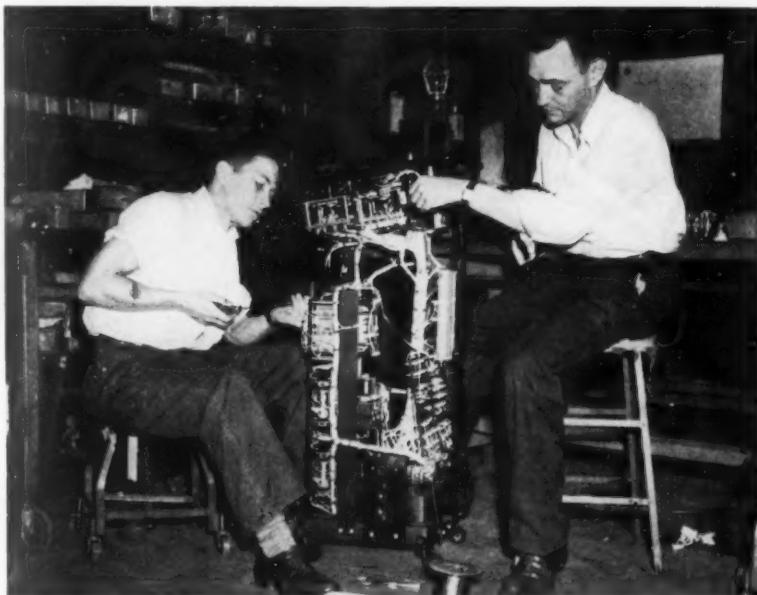
Nineteen per cent can be done by one-legged men.

Seventeen per cent of the jobs can be filled by men who must use a cane or crutches.

Don't expect the impossible

A word of caution was voiced by Mr. W. L. Hitt, coordinator for veteran placement at the East Pittsburgh headquarters of Westinghouse, when he said:

"The quality and quantity of the work accomplished by veterans of this war is pretty much in line with the extent of their physical and nervous disabilities. Battle action veterans are doing a real job in spite of their



After six and one-half months' fighting on Guadalcanal, Clarence Plum, (left) got a medical discharge from the Army and came home to help forge the weapons of victory. He is shown here with E. L. Roberts, a veteran of the North African campaign, working on an X-ray control in the X-ray Division of the Westinghouse Electric and Manufacturing Company at Baltimore.

as accurately as possible. This "job-breakdown" is so detailed that when it is completed a glance will be sufficient to tell whether a job requires a man with five fingers to do it, or whether it doesn't necessarily require any fingers.

In some of the manufacturing divisions, where such a study has been

handicaps, but I think it unwise, if not foolhardy, to assume, forthwith, that a man who has, say, lost an arm or suffered some other physical impairment in the war could meet his old production rate."

On the credit side for the handicapped, the following points have

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FERRO LOOKS BACK *Briefly*

1919

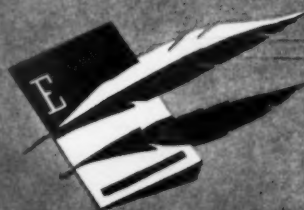
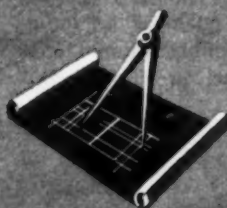
During the 25 years since the founding of the company, Ferro has literally "gone places" and "done things" as is evident from the record below.

While we are naturally proud of the success and growth of the business, we are also conscious



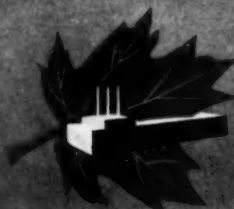
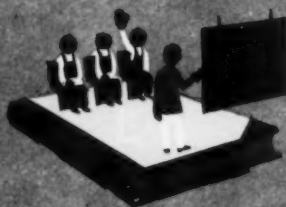
1 1919... Ferro Enameling Co. founded, to produce porcelain enamel frit.

2 1920... Ferro Enamel Supply Co. organized, to handle frit sales and engineering of plants and furnaces.



3 1923... The "Enamel-ist" published, first trade publication devoted exclusively to porcelain enameling.

4 1926... We publish a modern "handbook" on porcelain enameling; start the industry's first practical trade school.



5 1927... Subsidiary plant built in Canada to handle expanding Canadian business.

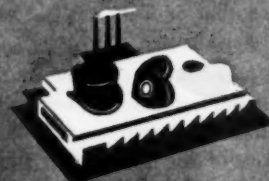
6 1929... Investigation and research started which later revolutionized porcelain enameling clays.



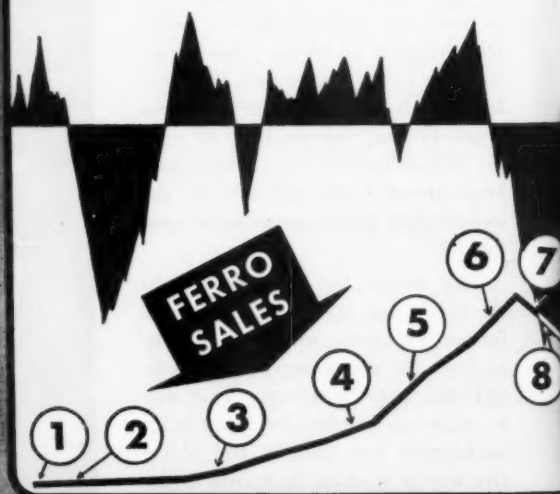
7 1930... Ferro Enameling Co. and Ferro Enamel Supply Co. merge to form the Ferro Enamel Corporation.



8 1930... First European Subsidiary Plant built in Holland, later followed by plants in France and England.



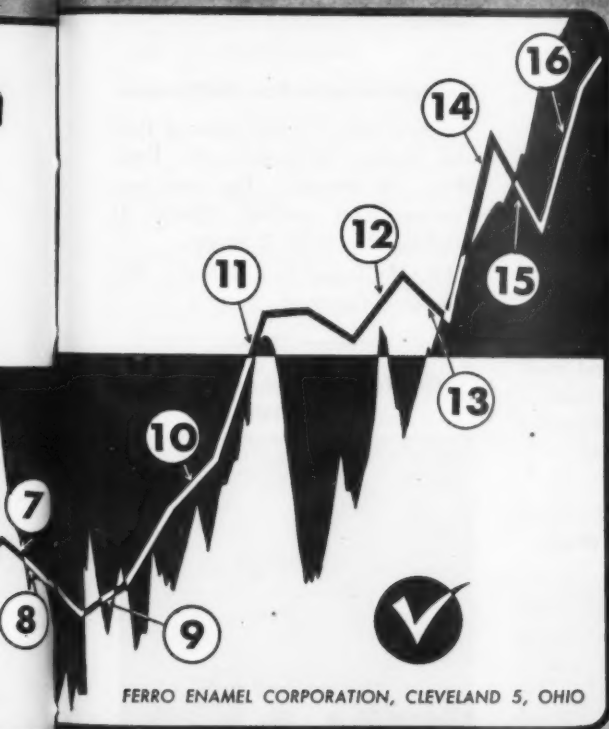
U. S. BUSINESS INDEX



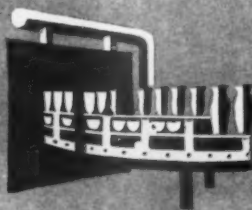
ON 25 YEARS OF PROGRESS

1944

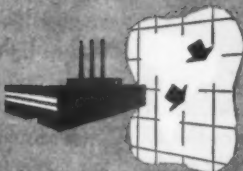
of our debt and obligation to our many loyal customers. So on this anniversary occasion we again want to express our thanks; also reassure our good friends that every effort will be directed toward meriting their continued support.



9 1933... Ferro enters pottery and allied ceramic field by acquiring Allied Engineering Co. and (later) the Ceramic Supply Co.



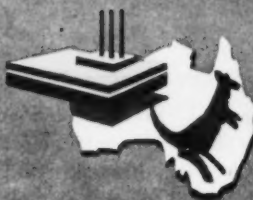
10 1935... Subsidiary plant built in Brazil, followed by another subsidiary plant in Argentina.



12 1939... Color Division started, to manufacture oxides for porcelain enameling and glaze stains for the ceramic industry.



11 1936... Australian Subsidiary Company organized and plant built to handle Australasian business.



16 1943... Ferro announces revolutionary new frits and production techniques; also offers help in recovering plants for peace.



15 1942... Extensive war contracts necessitate the building of new plants in Ohio, Alabama and California.



14 1941... Ferro Drier & Chemical Company is organized. W. B. Lawson, Inc., an established sales organization, is acquired a year later.



13 1940... Liquid Plastics Division formed to produce fine-quality synthetic enamels and other industrial finishes.

NEWS

"Herb" Beasley dies

Finish regrets to report the death of Herbert C. Beasley, general manager of The Cooperative Enameling Company, Cleveland, Ohio. Mr. Beasley died of a heart attack Wednesday, Sept. 27. Funeral services were at Shenandoah, Virginia, Saturday, September 30.

As an old-timer in the enameling business, some of his early experience was gained at the Coonley Manufacturing Company, Cicero, Illinois. He was a co-inventor of one of the first high production continuous enameling furnaces, at least one of which is still in active operation. It was known as the Be-Mac furnace — for Beasley and McDougal, co-inventors.

Later connections in the industry included positions as enameling superintendent at Servel, Inc., and at Baltimore Enamel and Novelty Company. Prior to becoming associated with The Cooperative Enameling Company he was service engineer for Ferro Enamel Corporation.

Frank Mahoney changes positions

It is reported that F. B. Mahoney, formerly with the Ellwood Company, Ellwood City, Pa., has taken a position with Reynolds Metals in a plant executive capacity where he will have responsibilities relating to a number of their factories. According to the

report, his headquarters will be the Richmond Radiator Company, Uniontown, Pa.

The Atlas Enameling Company, St. Louis, Missouri, will soon start operations in their re-vamped and modernized plant. Their modernization program included the installation of a continuous enameling furnace.

Arledge to Athens Stove Works

Raymond Arledge, formerly enamel shop superintendent with Birmingham Stove & Range Co., Birmingham, Ala., has changed positions, and is now with the Athens Stove Works, Inc., Athens, Tennessee.

Electric Household Utilities Corp. announces new dishwasher

An electric dishwasher, said to be of unusual design, is to play an important part in the post-war "Thor" line, according to an announcement by E. N. Hurley, chairman of the Board of Electric Household Utilities Corporation, Chicago, Illinois.

"We had no intention of making electric dishwashers," said Mr. Hurley, "until our engineers practically chanced on a new principle that made us decide we had something that women really wanted and needed. For one thing, the "Thor" Dishwash-

er will really be low priced. It can be installed in any home and doesn't have to be built into a sink. And dishes won't have to be wiped after washing. It's so quick and so simple that even our engineers are amazed that no one ever thought of it before."

The company will also introduce an automatic clothes washer and an automatic ironing machine. It was developing the clothes washer, according to Mr. Hurley, that the company's engineers accidentally discovered the new method for washing dishes.

New arrival at the Paul McCloskeys'

A new arrival at the home of Paul and Evelyn McCloskey, St. Paul, Minn., is reported. The new son, Terence John, arrived October 1, weighing 8 pounds, 2 ounces.

Mr. McCloskey is with Seeger Refrigerator Company.

Great Lakes Steel announces promotions



J. Emmett Fink

George R. Fink, president of Great Lakes Steel Corporation, has announced the promotion of two officials of that company to newly-created positions as a step in the company's plans for post-war.

J. Emmett Fink, general works manager for Great Lakes Steel, has been appointed vice president in charge of operations for the company. He will continue as works

manager of mills which are reported to be the government's chief source of supply for landing craft armor plate, Quonset huts and other wartime products.

Julius A. Clauss, chief engineer of Great Lakes Steel for many years and former War Production Board official, has been named vice president in charge of engineering.

Both J. Emmett Fink and Mr. Clauss have been with Great Lakes Steel since it was organized in 1929. Mr. Fink entered the steel industry in 1907 as a sheet mill worker in Allegheny Steel Company's Brackenridge, Pennsylvania Plant.

Mr. Clauss, who in 1929 and the early 1930's directed construction of the Great Lakes plant at Ecorse, Michigan, in 1943 served as special assistant to the director of WPB's Steel Division in charge of steel plant facilities. In 1940, Mr. Clauss was president of the Association of Iron and Steel Engineers.

Washer production may hit stumbling block says Seely

"The red tape to be encountered in so-called labor scarcity regions could prove insurmountable" to the production of household washers under WPB's release of new steel for civilian goods, according to Herman Gastrell Seely, widely known business commentator and financial editor of *The Chicago Daily News*.

"The labor problem isn't the only one to be solved, however, for prices on the new washing machines must be set by the OPA," Seely points out. "The 57,000 machines which may be approved by WPB for the final quarter are a drop in the proverbial bucket by comparison with an estimated demand of as high as 3,500,000 units during the first year of quantity production.

"It is reported that in some of the preliminary Washington discussions, there has been a tendency on the part of OPA to emphasize the price savings possible through further technological advances, and to insist that initial ceilings shall be based on volume rather than small-lot reconversion experiments.

"Bickering over theoretical savings isn't the way to get factories humming. If these preliminary conversations are any indication of final OPA pricing policies at Washington, the agency may find itself blamed for a lot of unnecessary unemployment during reconversion."

Ferro Enamel doubles war output—wins fourth "E" award

To meet the critical need for more Smoke-mix Ammunition with which to "screen" Naval vessels and advancing land forces, the Ferro Enamel Corporation was recently asked to greatly increase its substantial output of such materials—and, are reported to have come through with flying colors. These new contracts for smoke-mix ammunition are more than doubling Ferro's monthly war output.

While it has not been widely publicized heretofore, Ferro is said to be the Nation's largest producer of smoke-mix powders and incendiary materials. In addition, they have extracted cobalt and nickel oxides from marginal ores, for American war industry, and participated in a

number of research projects on new and still secret materials for war.

In recognition the company has received its fourth Army-Navy "E" Award.

Ferro officials report that in spite of the company's extensive wartime activity they are well along on their postwar plans, and have several new and improved products for their old customers already in production.

Tappan to protect old dealers

A dealer distribution policy that went into effect shortly before the attack on Pearl Harbor will be extended by the Tappan Stove Company to include the early period of post-war range production, according to C. V. McConnell, general sales manager.

"When ranges start to roll off the assembly line again," McConnell said, "an allocation system will be in effect for the protection of loyal pre-war dealers and new accounts will be served after we have satisfied the critical requirements of dealers in communities where Tappan was represented pre-war."

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Battelle Institute receives

Distinguished Service Award



The War Department presented Battelle Institute, Columbus, Ohio, the Ordnance Distinguished Service Award on September 22. In photo, left to right, are Clyde Williams, director of Battelle; Major General C. T. Harris, Jr., Commanding General of the Aberdeen Proving Ground, who presented the award; and Dr. Frank B. Jewett, president of the National Academy of Sciences who was the principal speaker.

The company is completing plans for doubling production to meet the demands of old and new dealers as soon as government restrictions are lifted permitting additional allocation of steel.

Westinghouse executive puts civilian production start 6 months after Nazi defeat



J. H. Ashbaugh, vice president of Westinghouse Electric and Manufacturing Company, and manager of its Appliance Division, predicted before the Electric League of Pittsburgh that there would be plenty of materials available when the German phase of the war is over, but that production of civilian consumer goods will not start until at least six months after the defeat of Germany.

He said, in part: "I don't question that there will be plenty of material available, but it will take time to get it in suitable form and at the end of a six month period some production should be underway." He pointed out that it will require "about four months to get material, one month to fabricate parts and production should start in the fifth or sixth month."

"The first problem that faces the electric appliance industry is getting production coming from the assembly lines, and I can assure you that it was a lot easier to start up war goods than it will be to start up consumer durable goods," said Mr. Ashbaugh.

Concerning prices: "I believe it is essential to this industry that we pre-

vent a substantial rise in prices," Mr. Ashbaugh declared. "We are competing for the consumer's dollar and to accomplish this it is necessary to give greater value in the future than we have in the past."

As to "dream products": Mr. Ashbaugh said most of the "post-war dream products" are coming from these people who have no responsibility to produce, sell or service them. "It is a time consuming program to bring out a new product or even make major changes in an existing product."

Ending on an optimistic note, he said: "The pent-up demand for electric appliances makes the future bright for this business. I don't know of any business that has its potential value for the future."

Wheeler to Erie Enameling

Daniel D. Wheeler has joined the Erie Enameling Company, Erie, Pa.,

as plant manager. As reported in "People You Know" (October *finish*), "Dan" was formerly with Titanium Alloy Manufacturing Company, Niagara Falls, N.Y., spending his full time on development and sales of zirconium products. Before joining the Titanium organization in 1935, he had been plant superintendent at Erie Enameling.

G. E. home laundry sales manager appointed

Lloyd G. Hertzler has been appointed sales manager of General Electric's home laundry equipment division, manager John M. Wicht announced.

Hertzler's promotion to his new position follows an extensive selling and sales promotion career with G.E. From 1939 until the war curtailed the production of peacetime appliances he was sales manager of the vacuum cleaner division.

Third "E" award to Mullins Mfg. Co., Salem plant



An Army-Navy "E" flag bearing two stars, signifying that the "E" has been awarded three times, now proudly waves over the Mullins plant at Salem, Ohio.

The Company has been active on critical production since the early stages of the war. Mortar shells represent one of a number of important products produced by this organization.

In the accompanying picture taken just before the flag was raised are, left to right: Back row: Neil Grisez, John Rodgers, Andrew MacLeod, Dan Boehm, Robert Culberson, Price McPherson. Front row: Mike Theil, Cletus Paumier, Carl Hannay, Alton Fenton, William Pfaff, Earl Hamlin, Harry Heckathorn, Harold O. Smith, Hazel Montgomery, John Emery and William Umstead.

"Youngstown Kitchens" appoints 22 distributors



Leroy Williams, at left, president J. A. Williams Co., Pittsburgh signs a franchise with Charles A. Morrow, vice president in charge of sales for Youngstown.

Youngstown Kitchens (Mullins Manufacturing Corporation) announces the appointment of twenty-two distributors who will be among the first to participate in its post-war sales training courses.

Youngstown Kitchens reports en-

largement and reorganization of its distribution system for pressed kitchen sinks and cabinets, and will train distributor representatives at its factory in Warren, Ohio. They will in turn instruct dealers throughout the nation.

Automatic Washer Company reverts to original trade name

Post-war household washers manufactured by the Automatic Washer Company, Newton, Iowa, will be designated by the original product name of "Automatic Washer," according to announcement by W. Neal Gallagher, the company's president and general manager. The qualifying words, "Laundry Queen," used in recent years, are being dropped.

According to our report, the original Automatic Washer trademark was registered in the United States Patent Office in 1920 and re-registered in 1940, and has been the exclusive property of the company since 1920. The company was founded in 1908.

American Foundry Equipment Co. wins second white star

For continued high achievement in the production of war materials, the American Foundry Equipment Company, Mishawaka, Indiana, has been

awarded its second White Star to be added to its Army-Navy "E" Production Award flag originally awarded on March 20, 1943.

Notification of this honor, which the company believes to be the first second award renewal star to be presented in the foundry equipment manufacturing field, was received from Robert P. Patterson, Under Secretary of War.

Estate Stove completes "V-E" Day plans

In announcing plans for their plant personnel for "V-E" Day, executives of Estate Stove Company, Hamilton, Ohio, indicate their intention to shut down for twenty-four hours when Germany surrenders. When official word is received that the war with Germany is ended, factory whistles are to blow the "V-E" signal — three short blasts and one long — at frequent intervals.

When the signal is heard everyone

except a skeleton maintenance crew, who have agreed to remain on duty, will shut down their equipment and leave the factory.

American Gas Association annual meeting

In deference to the present congested situation with regard to transportation and hotels, AGA cancelled a meeting originally scheduled for Chicago and held a brief annual meeting in New York on October 5.

The program included the President's Address by Ernest R. Acker, president, Central Hudson Gas and Electric Corp., Poughkeepsie, N.Y. An outline of a plan for research and promotional development in the gas industry was also presented by the president. Edward Falck, director, Office of War Utilities, WPB, Washington, D.C., talked before the group.

The annual election of officers resulted in the election of the following for the ensuing year:

President: J. French Robinson, president, The Ohio Gas Company, Cleveland, Ohio.



J. French Robinson

First Vice President: E. J. Boothby, vice president and general manager, Washington Gas Light Co., Washington, D. C.

Second Vice President: R. H. Hargrove, vice president, United Gas Pipe Line Co., Shreveport, La.

Treasurer: Edward F. Barrett, president, Long Island Lighting Company, Mineola, N.Y.

General Electric appointments



D. E. Mullin, Jr.

The reconstruction of General Electric's administrative and sales set-up of the appliance and merchandise department continues with the announcement of several new appointments.

Included in the announcement is the appointment of George E. Mullin, Jr., as sales manager for the electric sink and water heater division.

Florence Stove buys Cavalier range business

Florence Stove Company, Gardner, Mass., has purchased the entire electric range and gas range business of Cavalier Corporation, Chattanooga, Tenn., according to a recent announcement made jointly by President R. L. Fowler of Florence Stove and R. T. Frazier, vice president of Cavalier.

Said President Fowler, "This is part of the Florence plan of postwar expansion in the cooking and heating fields. We feel that we have been fortunate in acquiring the range business of such a well-regarded firm as Cavalier, and we know that this addition will aid materially in rounding out Florence's complete line of ranges for postwar—Gas, LP-Gas, Electric, Combination, and Oil."

Florence has acquired all rights, title, and interest in tools and designs for these ranges and the patents on Cavalier exclusive features. The company will supply repair parts for Cavalier Ranges now in use, subject to restrictions of war regulations.

According to Vice President Frazier, Cavalier has withdrawn from the range field in order to give all of its attention to its furniture lines and metal-working businesses.

Announcement

The Chicago District Enamellers Club will hold its next regular meeting on Saturday, November 4, at the Graemere Hotel, Washington Blvd. and Homan Avenue, Chicago. The meeting is scheduled at 12:00 o'clock, with luncheon at 1:00—the business meeting and program to follow.

Two speakers scheduled for this meeting are J. H. Shoemaker, Kolene Corporation, Detroit, Mich., who will speak on "Surface Preparation Prior to Porcelain Enameling," and Professor J. I. Yellot, Illinois Institute of Technology, Chicago.

Baltimore plant to be modernized

R. R. Trubey, president of Clyde Porcelain Steel Corporation, Clyde, Ohio, and associates, have acquired the Baltimore Enamel and Novelty Company, Baltimore, Md.

A new board of directors has been formed, consisting of the following: R. R. Trubey, president of both the Clyde and Baltimore organizations; H. A. Brehm, chairman of the Board; T. E. Stokes, executive vice president of Clyde Porcelain Steel; W. T. Winand and Geo. S. Blome, both vice presidents at Baltimore; L. S. Collins, formerly at Clyde and now a vice president at Baltimore; and E. R. Farny of New York City.

The management indicated a plan for complete rehabilitation and modernization of the Baltimore plant for

more news on Page 47 →

Remember way back when . . . at Roper?



Back row, left to right—Hobson, Fagan, Mabon P. Roper, George D. Roper, Andrews, Parker, Lucas. Center row—Powers, Kline, Derwent, Aiken, Breen, Fieger, Whitehead. Front Row—Van Zandt, Mosher, Rooke, Quinn, Scanlon, Wallace, Lawson, Lindblade.

This photograph was taken at a sales convention of the Geo. D. Roper Corporation held at the old Roper plant many years ago.

While a number of the men shown have now passed on and others are no longer with the organization, five of the group are still with the Rockford company. They are represented

by the following: Back row—left, S. H. (Stanley) Hobson, now company president; next, J. H. Fagan, district service manager. Second row—far right, G. F. Whitehead, experimental engineer. Front row—third from left, T. E. Rooke, district engineer; and second from right, Floyd K. Lawson, executive vice president.

News from Washington

Disposal of Government owned equipment (Regulation No. 4)

To assure the prompt removal of Government-owned equipment from private plants whose war contracts have been terminated, Robert H. Hinckley, Director of Contract Settlement, has issued Regulation No. 4. This regulation gives the contractor the opportunity either to buy the equipment or to have it removed promptly from his plant within 60 days after request for removal, except when necessary for other war purposes.

Pointing out that, by lease or other arrangement, the Government has furnished much equipment to war contractors, Mr. Hinckley said it was necessary as part of the war contract settlement process to remove the Government-owned equipment from plants with terminated contracts and make room for other operations or give the manufacturer a chance to purchase it. In many cases, the lease arrangements have required contractors to hold equipment in stand-by condition. The new regulation directs that, except when necessary for other war production or the national defense, these stand-by provisions will be waived.

"Spot authorization" products of interest to enameling industry

The manufacture of \$26,055,000 of civilian goods between now and September 30, 1945, has been authorized under the spot procedure contained in Priorities Regulation No. 25, according to reports to W. P. B.

This information is contained in a report of the Controller Division as of September 22, and covers 108 authorizations on which the Division had information at that time. Included in the list of products to be manufactured under "spot authorization" are: *miscellaneous kitchen and household aluminum ware, metal household furniture, domestic electrical cooking and heating appliances, industrial air conditioning equipment,*

domestic cooking and heating stoves (not electric), plumbing sanitary ware, domestic oil burners, domestic hot water heaters and domestic and industrial gas heaters.

General chemicals order amended (Order M-300)

To facilitate the handling of allocated materials during the reconversion period, the War Production Board has amended Order M-300, the general chemicals order.

According to provisions of the amendment, it will be possible to continue control over that part of chemical distribution that is essential for the war effort without governmental supervision over uses of chemicals in the production of specific civilian items.

Chemicals Bureau officials emphasized that the amendment applies only where the supply is adequate to permit the lifting of controls on allocated materials for specified civilian end uses.

Restrictions on enameled cooking, household and hospital ware eased

Removal of size restrictions on cooking, household and hospital enameled ware utensils in preparation for the resumption of peacetime production was recommended by the Porcelain Enameled Utensil Industry Advisory Committee at a recent meeting.

The committee also requested that additional steel be made available for use in the production of enameled ware for civilians in the fourth quarter, to prevent unemployment if military orders are cut back.

Relaxation of the enameled ware order, L-30-b, the committee explained, would enable the industry to use materials, manpower and facilities with maximum efficiency by permitting rapid shifts from one production line to another.

Revocation of L-30-b on X-day, as proposed within WPB, was approved by the Committee.

WPB representatives said the steel sheet situation is expected to improve in the first quarter of 1945, especially if Germany is defeated before that time and if military orders are cut back. Production of both hot and cold rolled sheets will increase if labor shortages do not interfere, WPB officials said. They added that enameled ware manufacturers should experience little difficulty in placing fourth quarter steel allotments.

A representative of the Foreign Economic Administration urged enameled ware manufacturers to produce to the full extent of their export quotas. He stressed the importance of enameled ware, used as barter goods, in assuring the importation of strategic materials into the United States.

Attention — restaurant equipment manufacturers

Calling for the fullest use of labor in "must" war plants in order to conserve the number of workers available for critical war needs, the War Manpower Commission has reinforced its manpower utilization campaign by urging employers of war workers to increase in-plant food services.

Asserting that the quantity and quality of war workers' production is directly influenced by the availability of nourishing food, Paul V. McNutt, chairman of WMC, instructed manpower utilization consultants to request "must" plant managements to install feeding facilities and services as a means of cutting down their manpower requirements wherever adequate facilities do not exist.

"The lack of restaurants adjacent to plants and difficulties associated with packing and carrying lunches often mean decreased war production in plants where war production needs to be increased most," Mr. McNutt said.

Restrictions removed on light metals

All Government controls on the use of magnesium for civilian products have been removed, the War Production Board reports in announcing the

revocation of Preference Order M-2-b.

The new Order M-2-c states that persons wishing to obtain aluminum or aluminum products may place rated or unrated purchase orders on their supplier without securing approval of WPB or the Aircraft Scheduling Unit of the Aircraft Resources Control Office. Orders so placed are subject to the priorities regulations of WPB, particularly Priorities Regulation 1.

Labor advisory committee urges continued control on commercial-type motors

Maintenance of present War Production Board controls on commercial-type motors, even after victory in Europe is assured, in order to distribute properly the supply of motors among all companies manufacturing civilian items such as washing machines, refrigerators and vacuum cleaners, was recommended at a recent meeting of the Fractional Horsepower Motor Labor Advisory Committee.

The proposal of WPB's General Industrial Equipment Division that all companies normally engaged in manufacturing commercial-type alternating current motors be the first to be cut back in special motors used by the armed forces was endorsed by the labor committee. This policy would allow increased production of AC motors by all manufacturers, resulting in a reduction of the present heavy backlog, it was explained. The industry would also be in a better position to supply the requirements for appliance production when their manufacture is again permitted.

Unfilled orders for commercial-type AC motors amount to 10.3 months at current production level, officials of the General Industrial Equipment Division reported. All requirements for military-type motors are being met at present despite the over-all motor backlog of 8.6 months at current production levels.

Commercial-type AC motor production is expected to increase 90 per cent from four to nine months after victory in Europe, Government officials declared.

Industry comes through on war production quota of \$67,300,000,000

In spite of critical lags in output of some important war equipment, the United States will come within two or three per cent of meeting the huge 1944 over-all quota of \$67,300,000,000, according to a report on war production issued by J. A. Krug, Acting Chairman of W.P.B.

In his report, covering 1944 and the preceding two years, Mr. Krug stressed that unrelenting efforts will be required to achieve the huge volume of production called for during the rest of the year, but said that the 1944 production record will compare favorably with the production record during previous years. He pointed out that previous years called for a much smaller volume of output, but nevertheless failed to meet annual goals — by 14 per cent in 1942 and by six per cent in 1943. Mr. Krug recalled that the volume of munitions output was \$8,000,000,000 in 1941, \$31,000,000,000 in 1942, and \$57,000,000,000 in 1943 — a steady increase in munitions output, which has enabled the United States to produce almost half of the world's war equipment during 1944.

Industry's advisory committees to have voice in military cut back program

The more than 750 industry advisory committees of the War Production Board will play an important role in the projected program for cutting back military production after "Victory in Europe" Day, according to WPB.

Hiland G. Batcheller, Operations Vice Chairman, has issued an instruction to all bureau and division directors providing for discussion by industry advisory committees of military cutback information and for recommendations to WPB by the committees as to particular facilities adaptable for producing civilian end products that should receive military cutbacks first.

Recognition of the notable assistance that the advice and cooperation

of the approximately 8,000 members of the industry advisory committees have given WPB in mobilizing the nation's industries to meet the wartime requirements of the armed services was extended by Mr. Batcheller.

Attention, porcelain enamel jobbing shops

An amendment to order L-259 issued recently adds bath cabinets to the list of items of physical therapy equipment that may be manufactured. It also includes the Veterans Administration with the military agencies (Army, Navy, United States Maritime Commission, and War Shipping Administration) to which these items may be sold. The change in the order was made at the request of the Veterans Administration.

Veterans may build or remodel homes

Procedures authorizing immediate priorities assistance to discharged veterans of the present war for building or remodeling their homes have been announced by the War Production Board and the National Housing Agency.

Under the new procedures, applications may be approved for the construction, alteration or betterment of houses to be owned and occupied by veterans who have received an honorable discharge from the Army, Navy, Marine Corps or Coast Guard since December 31, 1940, and who are unable to find other suitable living quarters.

Zimmerman to head Industry Relations section for stove rationing

Announcement comes from Fred L. Parker, chief of the Heating and Cooking Branch, OPA, that Harry W. Zimmerman has recently been appointed to head the Industry Relations Section for Stove Rationing.

Mr. Zimmerman was, for seventeen years, associated with the Coleman Lamp and Stove Company, Wichita, Kansas, in a sales capacity, having been manager of the Heating Appliance Division in both the Phila-

delphia and Chicago branches. He has been in charge of both the Fuel Oil and Stove Rationing Programs of OPA in the Richmond District.

OCR house and appliance market report available

Full reports on The Market for Houses when Materials and Manpower are Available, and The Immediate Market for Appliances, have been issued by WPB's Office of Civilian Relations. (A resume of this report appeared in July *finish*.)

"Interest in post-war housing and appliance demand has been so pronounced," OCR said, "that it seems wise to make all of our survey findings on these subjects available." The reports may be obtained from WPB's Division of Information, but copies are said to be rigidly limited in number because of paper restrictions.

Extra demurrage charges instituted (ICC Service Order No. 242)

The Office of Defense Transportation announced that the Interstate Commerce Commission because of present freight transportation demands on railroads, has ordered heavy demurrage charges to discourage delays in the loading and unloading of boxcars.

The order is effective from October 19 to November 19, 1944. It states that delays in loading and unloading boxcars are interfering with the maximum use of such equipment and that "an emergency exists requiring immediate action to prevent a shortage of railroad equipment and congestion of traffic."

Cobalt chemicals off Group I list

Forty-two materials, the supply of which has increased, have been removed from Group I in the fourteenth Material Substitutions and Supply List, announced by the War Production Board. (Cobalt chemicals are included in the list.) Materials in Group I are those of which the supply is insufficient to satisfy war and essential industrial demands.

Seventeen materials, among them

paper, penicillin and carbon tetrachloride, have been added to Group I.

Howard Cooley, Conservation Division director, said: "Abolishment of the Conservation Division is in no way to be construed by the public to mean that there no longer exists a need for the conservation and salvaging of paper, tin cans and rags. Every civilian should continue to do everything he or she can to save these war materials. This cannot be emphasized sufficiently. All organizations now engaged in collection campaigns should press and not relax their drives. Every piece of paper, every tin can, every rag should be saved."

Metal scrap supply adequate

In view of the adequate supply of metal scrap, the War Production Board has revoked Order P-136, assigning preference ratings to processors of metal scrap for maintenance, repair and operating supplies.

Availability of MRO materials is no longer a limiting factor in the flow of scrap. With the revocation of P-136, scrap dealers may use the ratings assigned by CMP Regulation 5 to obtain maintenance materials, WPB said.

Deliveries already rated under P-136 will be completed, but no additional application of these ratings may be made, it was explained.

Supplemental steel allotment for civilian products

A supplemental allotment of 58,428 tons of steel has been made available for the War Production Board's Office of Civilian Requirements to increase a number of civilian production programs in the fourth quarter, WPB has announced.

The allocation, made by the Requirements Committee, brings the total materials for the direct disposal of OCR to 278,203 tons.

This amount of material for most items involved is insufficient to provide for more than minimum essential requirements in each product and is such that, even if the feasibility of manufacture is established, the products manufactured will be limited.

In all except a few cases, feasibility of manufacture must be fully established, which means that manpower and facilities must be found available without harming war production. In a majority of the cases, changes in one or more of WPB's limiting controls must be made before manufacture can be allowed. These controls include limitation orders, approved Division Requirements Committee decisions and program determinations.

OCR has divided the allotment into three parts:

1. 9,000 tons for direct allotment to restore cuts in regular fourth-quarter programs and including minor program increases.
2. 19,428 tons of carbon steel for minor increases in programs for the use of which changes will be required either in limitation orders, in Division Requirements Committee decisions or in program determinations.
3. 30,000 tons of carbon steel to be put in a special reserve for certain so-called major programs.

Products in the first group, in part, are: commercial electric appliances (other than cooking or heating), ice refrigerators, scullery sinks, shower stalls, commercial electric cooking equipment, gas heaters, laundry stoves, non-portable fuel-oil stoves, gas floor furnaces and hot water storage tanks.

Included in the second group are: plumbing fixtures and trimmings, gas hot plates, combination ranges, fuel oil portable stoves, range boilers, coal fired water heaters, electric space heaters and oil floor furnaces.

Included in the third group are: household enamel ware, gas ranges and cook stoves, gas underfired water heaters, coal and wood ranges and cooking stoves, oil ranges and cooking stoves, electric ironers and warm air furnaces.

It will be obvious that the products listed in these three groups represent only a few of those included in the total listing by O.C.R.

In addition, 200,000 tons of steel has been made available for the "spot authorization" program under which

preference will be given to manufacturers intending to produce items on OCR's list of essential products.

More electric water heaters

Additional material has been authorized to increase fourth-quarter production of electric water heaters for civilian use from 12,500, as originally approved, to 30,000.

Production for the Armed Services and for the National Housing Agency is not included in the 30,000.

Order L-185, controlling production of water heaters, will be amended soon to provide for the increase in production permitted by the additional allocation of materials, it is reported.

30,000 domestic oil burners authorized

Material has been authorized for the production of 30,000 domestic type oil burners during the fourth quarter of 1944, for replacement and hardship cases, according to WPB.

Production of this type of oil burner has been prohibited since April 15, 1942, but essential replacements have been made from inventories of manufacturers and dealers. These inventories have become depleted.

Although material has been authorized for production during the three months beginning October 1, it is not expected that any appreciable quantity of these oil burners will be on sale soon, since they have not been made for more than two years and production can not be started until production lines have been set up.

Until Order L-74 is amended, only those producers who can qualify under the "spot authorization" procedure established in Priorities Regulation 25 will be permitted to begin production of domestic oil burners.

Refrigerator & Laundry Equipment Labor Advisory Committee recommendations

Special assistance in obtaining materials and components in preparation for reconversion was urged at recent meetings of the Domestic Mechanical Refrigerator and Domestic

Laundry Equipment Labor Advisory Committees.

Committee members urged WPB to permit refrigerator and laundry equipment manufacturers to place orders and receive raw material and components well in advance of final assembly so that employment may be maintained at a high level when war orders are cut back after victory in Europe.

Production of mechanical refrigerators and laundry equipment is a complicated process, committee members emphasized. Both industries deal with a large number of suppliers in obtaining the wide variety of materials and components needed to make their products, they explained. After manufacturers are authorized to resume production, they will require an average of at least six months to place orders for materials and components, set up production lines, and make a minimum practical run of refrigerators or laundry equipment, labor representatives estimated.

Members of both committees advocated gradual relaxation—not complete abolition—of WPB controls after victory in Europe. Small manufacturers can be assured of a fair share of materials only if controls are retained, members stated. They also urged that Government owned plants be converted to civilian production only after the reconversion of privately-owned plants.

Report on gas range stocks and monthly production rates

Production of gas ranges rose steadily between September 1943 and March 1944 when it reached a peak of 64,000 units. During the next four months, it declined steadily and totaled only 46,000 in July. It increased sharply in August. Consumer purchases increased from 24,000 in September 1943 to 49,000 in August of this year. It is indicated that the latter figure would have been still higher if certificate issuance had not been restricted by means of limited quotas.

The comparison between supply and consumer need is even less favorable than these figures indicate be-

cause between 6,000 and 17,000 gas cooking stoves, each month, have gone to the Army or Navy, for housing, or for export. Because of this excess of consumer need over production, trade inventories have declined from 113,000 on September 1, 1943 to only 65,000 on August 31, 1944. (After taking out the victory models with non-metallic sides or backs.) At the same time, the backlog of orders supported by certificates rose to 90,000 by August 31.

According to O.P.A. a large part of this increase was made possible by the increase in allowable inventory authorized by Amendment 8 which became effective on May 22. The decision to make this increase was made after the March production figures were compiled and was based upon the indicated upward production trend. The heating and cooking equipment branch hopes that the August rate of production can be maintained in future months as manufacturers' stocks have declined from 44,000 to 33,000.

Oil burner manufacturers may apply for production quota

Oil burner manufacturers may now apply for permission to produce the 30,000 domestic type oil burners for which material was recently authorized for fourth-quarter production, W.P.B. has announced.

Order L-74 has been amended to implement the authorization of material. Previous restrictions of the order prohibited manufacture of domestic type oil burners except when a manufacturer was specifically authorized to produce such burners for some specific installation.

Manufacturers of coal and wood stoves must keep records

Since coal and wood heating and cooking stoves are being made certificate free but remain subject to rationing control, it is required that records be maintained by manufacturers of all orders and shipments.

Since manufacturers and other suppliers are now permitted to accept both orders accompanied by certi-

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cates and orders not supported by certificates, the Order has been amended to require that manufacturers keep a record, by stove type, showing production and sales.

The record must also show all orders received, whether they were or were not accompanied by certificates and the date the certificates were received. In addition, the record must show the number of stoves delivered or shipped on all orders whether or not those orders were accompanied by certificates.

Contract settlement forms

Standard forms to be used for settlement of terminated fixed-price (lump sum) supply contracts, approved by all government agencies concerned, were made available for distribution on October 10, Robert H. Hinckley, Director of the Office of Contract Settlement, announced. The uniform settlement proposal forms may be obtained from any government contracting agency, such as the procurement services of the Armed Forces and the Maritime Commission at their local offices throughout the country. Subcontractors may obtain forms from their prime contractors.

Federal highway bill threatens outdoor signs

The National Electric Sign Association reports that it is cooperating with the American Highway Sign Association and other organizations to support an amendment to U.S. House Bill No. 4915, in order to reduce the threat to all types of highway signs contained in this legislation.

In brief, H.R. 4915 appropriates \$50,000,000 per year over a three year period as the federal government's share in constructing a new interregional highway system. The federal government is to pay up to 60 per cent of the cost during the first fiscal years after the war and up to 50 per cent thereafter. The National Interregional Highway Committee, which proposed the bill, rec-

ommends that *marginal strips not less than 100 feet wide on each side of such highways be acquired in order to serve as a protection against erection of any "private structure or sign."*

The Senate has passed its version of the bill without any amendments and the House will consider it some time in November after the election recess. Strong support of the amendment has been promised by some of the members of the House, but indications of strong support from people interested in it are needed. It is imperative that every member of the sign industry make an effort to support this movement N.E.S.A. points out.

Plumbing and Heating Products included in supplemental steel allotment

Items of plumbing and heating equipment included in the list of civilian items for which a supplemental allotment of 58,428 tons of steel has been made available for the fourth quarter are:

All domestic cooking and heating stoves

Warm air furnaces

Oil and gas floor and wall furnaces

Warm air distribution equipment

Underfired gas water heaters

Hot water storage tanks

Range boilers

Low pressure steam and hot water heating specialties

Combustion, heat generation and distribution controls

Manufacturers of equipment who desire to obtain material under the supplemental steel allotment must file supplemental Controlled Materials Plan 4B applications with WPB Plumbing and Heating Division, officials explained. With each request for additional material a manufacturer must submit Form WPB-3820 giving all necessary information as to his labor supply for the requested increase.

Some of these items of plumbing and heating equipment such as domestic cooking and heating stoves and warm air furnaces did not receive as much material for produc-

tion in the fourth quarter as for the third quarter. For these items additional material can be allotted and increased production authorized immediately without any manpower clearance, WPB said.

Manufacturers whose production is authorized on Forms GA-1850 in addition to filing supplemental CMP-4B applications should also attach a letter requesting additional production quotas.

Restrictions on housing eased

A joint report by W.P.B. and N.H.A. outlines certain changes and eased restrictions regarding housing which intended to simplify building.

The rulings changed include:

Change in restrictions on the number of electrical outlets.

Removal of restrictions on the size of hot water storage tanks.

Rescinding the ruling requiring that bathrooms and kitchens be built back to back.

Plumbing requirements condensed and simplified.

Heating section completely revised.

Industry News

Hoenigmann elected to national gas association board

At the American Gas Association executive meeting held in New York on Oct. 4 and 5 Frank J. Hoenigmann, executive vice president and general manager of Cribben and Sexton Company, Chicago, was elected a member of the association's executive board and chairman of the manufacturer's section.

Mr. Hoenigmann became identified with the gas industry when he joined Cribben and Sexton in 1930 as general sales manager. He was appointed to his present position in 1940, according to the company executives, because of the marked influence he had effected upon the growth and progress of the company.

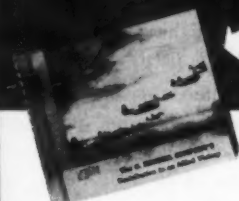
A graduate engineer from the University of California, "Frank" served as a 1st Lieutenant in World War I and as Aide-de-Camp to General Hugh S. Johnson.

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The enameler's goal (Continued)

enamels may be satisfactorily sprayed through the finest gun orifices and with the finest needles available without damage to the gun and without difficulty from plugging. It has been possible to apply enamel satisfactorily to a continuous series of small oven doors, moving through the field at a speed of $2\frac{1}{2}$ feet per minute, with a total delivery of enamel through the gun of only 5 grams per second. A further very interesting characteristic of the enamel sprayed in the electrostatic field lies in the fact that the application over radii appears to be actually decreased rather than increased, so that many of the past difficulties encountered with heavy enamel over radii would be eliminated.

Naturally, ultra thin application will require extremely closely controlled spraying. The techniques developed for use with the electrostatic spray should, therefore, be of great value to the enameling industry, regardless of whether or not the electrostatic field is used.

Another interesting feature in regard to the application of enamels in finely atomized condition lies in the condition of such overspray material as results. This material, being finely atomized, dries out rapidly in the booth and results in a powder which may be brushed away rather than the wet, gummy mass produced by the conventional spraying operation.

Considerable interest was developed just prior to the war in the use of radiant heat in the form of infra-red radiation as a drying medium. There is no doubt but that the many coating problems incident to the war have greatly improved the technique in the drying field, and as soon as this information becomes available it may be found applicable to our industry.

Developments in firing

Control instruments will no doubt be improved and the experience which many enamellers have had in the annealing and hardening of metals, under close specifications of the Government during war time operations, will no doubt give rise to improved

control as regards firing operations.

Considerable interest has been expressed in the use of induction heating and similar types of energy produced from high frequency electricity. It may be said that it is perfectly feasible to fire enamel using induction heating or its equivalent. For persons producing stock sheets and similar simple items, there is a possibility that induction heating might speed up the firing process, although to date experience has not been sufficient to warrant positive conclusions. At present induction heating is the most expensive type of heating available, and is used only in specific instances where other types of heating are unsatisfactory.

Since enamel is a silicate, and silicates fuse in a controlled time/temperature reaction, it may be considered somewhat questionable as to whether or not extreme rapidity of heating by this method would yield results in the enamel industry that are obtainable with metals.

With regard to control

It may be emphasized that the nearer the enameler approaches his goal, the closer will be the control which he must exercise over every part of his operation. It will no longer suffice to control the fineness of the enamel, to test the pickling acids twice a shift, check the set of the ground coat occasionally, and look at the furnace controls from time to time. It will be necessary to closely control the quality of all of the materials entering into the product, and the functioning of every operation in the entire enameling process. In the past it has been found by most enamellers that good control paid for itself, and this will be even more true in the future. The savings made available through improved products will more than offset the increased attention required to produce them.

Finally, in studying the overall picture the human element must be considered. Enamel shop operators during war years have been forced to convert their plants, their equipment

and their personnel rapidly and efficiently to the production of products, some of which were unknown before the war, even in military circles. They have been forced to conform with stringent specifications as regards quality of product, and they have been forced in some cases to produce quality material with insufficient and untrained labor. These activities should bear testimony as to the flexibility and adaptability of the industry. There is no question but that these attributes learned during the war years will be put to good advantage when peace time comes again, and the enameling plants throughout the country can go back to their normal operation.

It would appear that rather than being a dead industry, the enamel industry, at the present time, is making more progress towards its self-appointed goal than at any time in its history. Acid-resisting enamels have been improved, and are being improved. Opacification qualities of cover coat enamels have been greatly improved, and are still being improved. The application of cover coat enamel direct to the metal is possible and steps are rapidly being taken to make it a production item. Production of enamels for use at lighter and lighter application weights is progressing rapidly, and the value of such light application weights is known. Maturing temperatures of enamels are being reduced and methods of processing and control are being carefully investigated with an eye to improvements.

All in all, there has been a great increase in the investigation of the basic features controlling the industry so that rather than having 'died' during the war years, the enamel industry has actually progressed and if it is able to maintain its present rate of progress there is no question but that the industry will continue to grow and expand.

This article was adapted from a talk by the author before the Chicago District Enamellers Club at their fourth wartime meeting on Sept. 23.

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mass production in porcelain on steel finishes in the post-war period.

Sections of both plants now headed by Mr. Trubey are busy on important war production, and are expected to continue with this work as long as such production is needed.

Fritz and Pearce honored by A. C. S.

A reception honoring Mr. E. H. Fritz, president, and Mr. Charles S. Pearce, associate secretary of The American Ceramic Society, was held on October 20 at the Society's executive offices, Columbus, Ohio.

The reception was held in conjunction with the Ohio Ceramic Industries Association Meeting held October 20 and 21. Invitations were extended by Ross C. Purdy, general secretary.

Ingersoll observes 60th year of service

Sixty years of service to the farm implement industry was observed on Thursday, October 12, by Ingersoll Steel and Disc Division, Borg-Warner Corporation.

Principal speaker for the anniversary dinner held at the Drake Hotel was Eric A. Johnston, president of the United States Chamber of Commerce. Presiding was Roy C. Ingersoll, president of the Company and vice president of Borg-Warner. There were also two other sons of the late S. A. Ingersoll who started the farm implement parts venture at Sandoval, Illinois in 1884. They were Harold G. and Stephen L. Ingersoll who, together with brother Roy, are Borg-Warner directors. The third generation was represented by a grandson, Robert S. Ingersoll, works manager of the Kalamazoo, Michigan plant where Ingersoll-designed amphibious tractors are being produced.

Ferro Enamel opens New York office

Robert A. Weaver, president of Ferro Enamel Corporation, Cleveland, Ohio, has just announced the opening of a new sales office in New

York City effective November 1. Ferro's new office will be located at 17 East 42nd Street, and will be managed by W. H. (Woody) Wilson as eastern territory manager.

Mr. Wilson has been identified with Ferro for a number of years, and is well known in the enameling field. Prior to the new appointment he was assistant manager of the Frit Division.

According to the Ferro official, the prospect of early resumption of consumer goods production, together with anticipated large volume post-war business prompted this step.

Mr. Wilson and his organization

will handle all of Ferro's products, and the territory will embrace New England and the Atlantic Seaboard States.

Robert Ahrens dies as result of fall

Robert S. Ahrens, Vice President in Charge of Engineering for Seeger Refrigerator Company, Saint Paul, Minnesota, died early October 4th as a result of injuries suffered a week earlier in a fall from a ladder.

Born June 22nd, 1890, in Cincinnati, Mr. Ahrens had been employed by the Seeger Company for twenty-five years. He was a member of the

to Page 52 →

Somebody suggested an Old-Timers' Club

by The Wrangler

At a recent meetin a gang uv industry members discussed the possibility of formin a "Old-Timers' Club." The discussion meandered round sutable plans for so important and sedate a organization as shud have sech a title hung on it.

It was spontanously & unanamusly agreed that membership was to be by invite only, and thet the membership wuz not to be given out. I can report that me friend "Spike" Spencer of Erie Enamelin' seemed ter take a bright interest in this enterprize, and the name of Ben Chapple Sr. was brot up as "Senior Master," or "Motevater" or somethin or other.

Out of a clear (and blue) sky the boss man hands me a copy of a purposed charter or constitution or whatever you call them things, which he sez showed up on his desk. I sez — boss man — let me handel this proposishun cause I think our readers wud like to look it over.

CHARTER

Whereas, God in His Infinite Wisdom hath provided a world fitted for exploitation teeming with suckers and ripe for exhaustion; and
Whereas, Using the same Wisdom He has placed therein a Tribe known as ENAMELERI EMERITI who have wandered enough to be cognizant of these facts;

Therefore, Be it known that this Tribe, in their Definite Wisdom, hereby codify and establish their system of Governauce to be as follows:

Qualifications: Members must have between fifteen and fifty years' service in approximate attachment to the Porcelain Enameling business.

Elections: One new member, named The Copperhead, is elected each year.

Dues: Nothing, payable on demand.

Initiation Fee: One Dinner, of that standard of weight and wetness which befits the eminence of the ENAMELERI EMERITI.

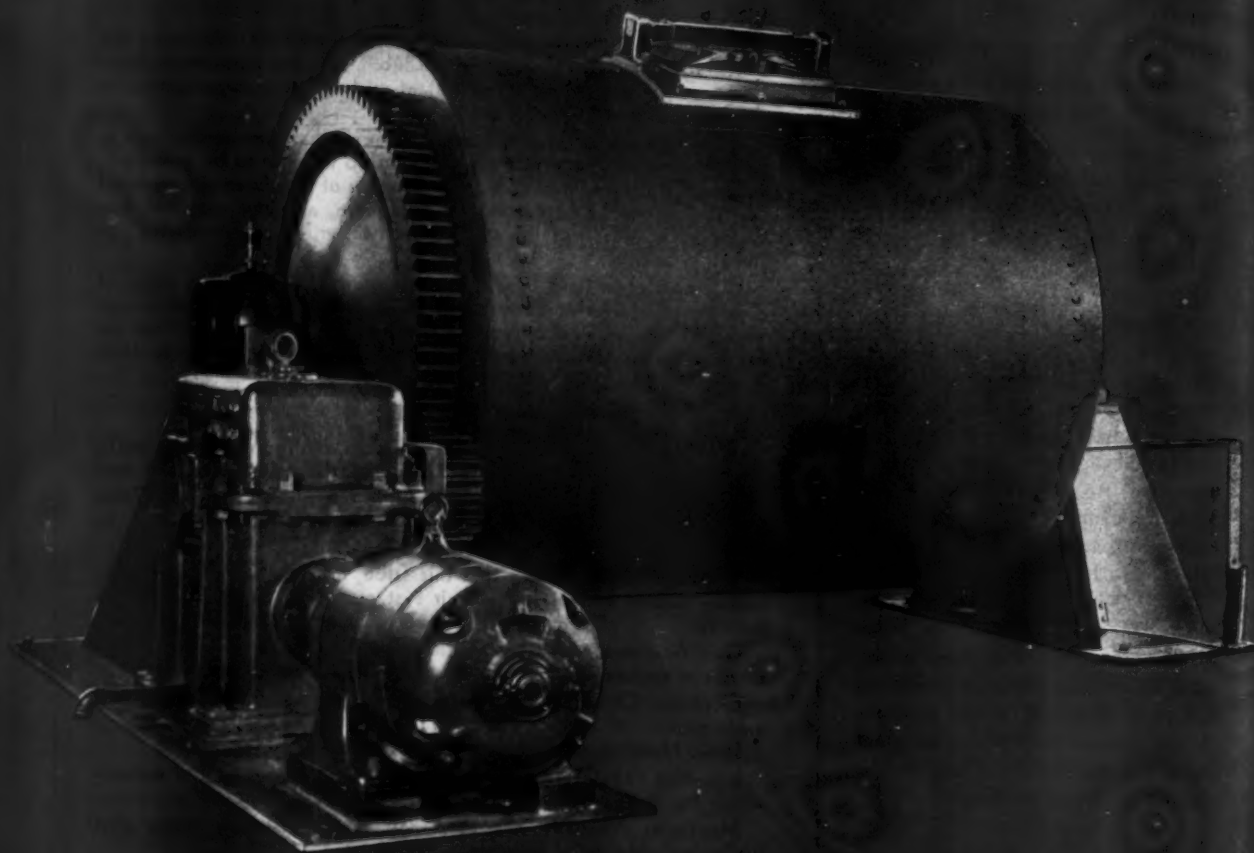
Meetings: Annually, the third day of the first new moon after the spring ebbtide of fishscale.

Officers: One Copperhead, as above mentioned. All other members shall be vice-presidents.

In witness whereof each member hereby subscribes his name, and nothing else.

INTERNATIONAL MILL

DRIVE ARRANGEMENT No. 5



Chicago Vit Now Represents

International Engineering, Inc.

Exclusive in Enameling Industry

CHICAGO VIT is pleased to announce that they are exclusive sales agents for International Ball Mills, mixers, and storage equipment for the Porcelain Enameling Industry. The name INTERNATIONAL is well-known in the processing industry. The mills are the most modern, both in engineering and construction. Point for point International Mills are outstanding in the field of wet grinding. The complete line of mills has been newly engineered and are equipped with the convenient McDanel unloading mill head and long-lasting McDanel lining. Chicago Vit has selected International because we believe firmly that the equipment is the finest available. When purchases of this type of equipment are contemplated, be sure to ask for complete specifications.

Chicago Vitreous Enamel Product Company

Makers of Fine Porcelain Enamels

Cicero 50, Illinois

Firing ground coat and cover coat enamels on the same furnace chain

(Continued)

the same amount of heat is required to properly mature the enamels. Washing machine tubs and sinks are ideal for this. It would seem that table tops, signs of uniform gauge, and other enameled products could also be run in this manner. Where a variety of sizes, shapes and gauges of metal must be run at the same time, it seems fairly plain that difficulty might be encountered.

5. *Even flow of ware.*—This is desirable to keep the furnace chain loaded. This is reflected in plant scheduling, and should be possible in any well organized plant.

6. *Good control.*—So desirable in any enameling operation, it is particularly important in relation to enamel slips, spray and dip weights, and furnace temperatures if this system is to be used.

Advantages and results

1. *Smooth, continuous flow of ware.*—Except for the normal percentage of rework, tubs continue from the fabrication department to the shipping room in a continuous flow without interruption.

2. *Less handling.*—The ground coat bank or bunker is eliminated. The fired ground coat tubs feed directly to inspection, and then to finish coat application.

3. *Quick turnover of ware.*—Our system in starting the plant was to start pickle room operations in advance of the dipping; have the dip gang start one hour ahead of the sprayers; and adjust all operations as nearly as possible to furnace capacity. A tub can enter the plant from the fabricating department in the morning and be on its way out before noon.

4. *Close control of production.*—Quick turnover of stamped parts and lack of bunkers for storage simplified production control. It also simplified the checking of any abnormal results.

5. *Increased production.*—With the plant as described, it should always be possible to keep the furnace loaded to capacity; and with the

elimination of all extra handling resulting from two-temperature firing, increased production is the natural result. Our results speak for themselves as far as the Ingersoll plant is concerned.

OLD G.C. FORMULA

(Used burning G.C. alone)

No. 1 G.C. Frit.....	65%
No. 2 G.C. Frit.....	15%
No. 3 G.C. Frit.....	20%
Clay	7%
Nepheline Syenite	10%
Borax	3/4%
Magnesium Carbonate	1/16%
Milled 9-10%. Dipped 41-42 grams per sq. ft. dry weight.	

NEW G.C. FORMULA

(Used to burn G.C. & White

Cover Coat together)

No. 1 G.C. Frit.....	40%
No. 2 G.C. Frit.....	40%
No. 3 G.C. Frit.....	20%
Clay	8%
Nepheline Syenite	9.5%
Borax	3/4%
Magnesium Carbonate	3/16%
Milled 8-9%. Dipped 37-38 grams per sq. ft. dry weight.	

Plant-wide "Job Studies" and a War Veterans Plan

(Continued)

been noted. Handicapped persons by the very reason of their handicaps, seem to be more careful and take fewer chances than do normal persons.

Handicaps tend to reduce absenteeism and these people take unusually good care of their health.

Handicapped are usually first to work, stay at their benches longer and are last to leave, according to Westinghouse experience. The explanation may be that their disabilities make it more convenient to avoid crowds.

War veterans' plan

The company plan for returning service men embraces the following points:

6. *Better quality ware.*—The elimination of extra handling reduced damaged ware in process. The uniformity and ease of control in operation increased the one-coat percentage. The result was an average lighter coat of enamel on our tubs and, I believe, in general a better looking, more durable finished product.

The final result

What we finally ended up with was an exceptionally compact enameling plant with not a square foot of waste space—there wasn't a square foot left to waste.

We ran the plant in this manner for over a year before production was cut off by the war, and we naturally plan to use the same system when we get back into tub and sink production, which we all hope will be in the near future.

One thing it proved to all of us that worked on the job was that it doesn't pay to be too hasty in conceding "it can't be done," merely because it hasn't been done in the past.

I do want to give credit to the close cooperation of our suppliers in the early days of this work. It may be that some of the other procedures that have been considered standard in the enameling field for so long could bear examination in just such a manner.

1. Making an industrial relations representative responsible for re-establishing returning veterans.

2. Surveying all positions in all plants.

3. Designating a physician to be responsible for all physical examinations of returning veterans and to supervise special medical attention for disabled veterans.

4. Assuring continuous service credit for the time spent in the armed forces by employee veterans.

5. Making every effort to find jobs quickly for returning employee veterans who are able to work.

6. Maintaining close contact with local and state agencies involved in the welfare of returning veterans.

INDUSTRY'S "FOUR STAKES"

IN THE INDUSTRIAL

WASTE PAPER

SALVAGE

PROGRAM



INDUSTRY'S "FOUR STAKES" IN WASTE PAPER SALVAGE

STAKE NO. 1

Waste paper provided by industry is an essential raw ingredient in the manufacture of paper and paperboard products necessary for military and essential civilian uses.

STAKE NO. 2

Waste paper is essential to make the containers that help keep your business alive by distributing the products you make.

STAKE NO. 3

Waste paper in most industrial plants can be sold to waste paper dealers. It is a source of extra profit to your company.

STAKE NO. 4

Waste paper in the form of old files, obsolete records, loose paper around warehouses, receiving departments and shipping departments takes up space that costs money and slows down efficiency.



Space and production costs for this advertisement donated by Finish in the interest of the National Waste Paper Salvage Program.



Number one headache for architectural enamel manufacturers

(Continued)

correlation between results of the exposure test and the slump and strain tests performed in the laboratory.

Comments

The results of the tests on caulking compounds would tend to leave the impression that there is only one out of ten or twelve caulking compounds suitable for use in connection with architectural porcelain enameled panels. Before we act on conclusions formed from the general conclusions based on the test data there

are several factors that should be considered.

Many of the compounds submitted for test were probably those designed for other purposes. It is entirely possible that the manufacturers of most of these compounds could develop materials designed to meet our specific requirements, and that the resulting test data on these new materials would present an entirely different picture.

The fact that two of the materials have proved satisfactory to date

would indicate that the ultimate answer to this problem will not be impossible to achieve.

A constructive step would seem to be to acquaint a number of the caulking compound manufacturers with the market possibilities for architectural porcelain enamel. The next logical step would be for the enameling industry to cooperate with these manufacturers in the establishment of a suitable specification for such material. Once this is accomplished, a reasonable amount of research on the part of the compound manufacturers should result in a suitable "medicine" for the architectural enamelers "No. one headache."

Results of Exposure Tests: Defects and Ratings

Legend: HW—Horizontal wrinkling; VW—Vertical wrinkling; S—Slight sinking; BS—Bad sinking; MS—Medium sinking; GA—Good adherence; PA—Poor adherence; N—No change; SW—Swelling.

Brand	Time of Exposure											
	10 Days	140 Days	8 Months	Rating	20 Months	Rating	Defects	Rating	2 Years	Rating	Defects	Rating
No. 1	HW-S	HW-S	HW-S-SW	Fair	HW-S-GA	Fair	N	Fair	N	Fair	N	Fair
No. 2	HW-S	HW-S	HW-S-SW	Fair	HW-S-GA	Fair	N	Fair	N	Fair	N	Fair
No. 3	S	HW-S	HW-S	Fair	HW-BS-GA	Poor	N	Poor	N	Poor	N	Poor
No. 4	VW	VW	VW-SW	Poor	BS-VW-GA	Poor	N	Poor	N	Poor	N	Poor
No. 5	S	S-VW	S-SW	Good	S-GA	Good	BS-GA	Poor	N	Poor	N	Poor
No. 6	S	HW	HW	Good	BS-HW-PA	Bad	N	Bad	N	Bad	N	Bad
No. 7	S	S-HW	S-HW	Fair	BS-HW-GA	Poor	BS-HW-GA	Poor	N	Poor	BS-HW-PA	Poor
No. 8	S-VW	S-VW-HW	S-VW-GA	Bad	BS-VW-GA	Bad	N	Bad	N	Bad	N	Bad
No. 9	S-VW	S	S-SW	Good	BS-VW-GA	Bad	N	Bad	N	Bad	N	Bad
No. 10	S	S-VW	S-VW-SW	Good	BS-VW-GA	Bad	N	Bad	N	Bad	N	Bad
No. 11	N	S	S	Good	S-GA	Good	N	Good	N	Good	MS-PA	Bad
No. 12	VW	S-VW	S-VW	Bad	VW-BS-GA	Bad	N	Bad	N	Bad	N	Bad
No. 13	N	S-PA	S-PA-SW	Bad	N	Bad	N	Bad	N	Bad	N	Bad
No. 14	N	N	SW	Good	SW-GA	Good	S-GA	Good	N	Good	MS-PA	Bad
No. 15	S	S-PA	S-SW-PA	Bad	S-PA	Bad	N	Bad	N	Bad	N	Bad
No. 16	HW	HW	HW	Good	BS-PA	Bad	N	Bad	N	Bad	N	Bad
No. 17	N	S	S	Good	S-GA	Good	N	Good	N	Good	N	Good
No. 18	S	S-PA	SW-S-PA	Bad	BS-VW-PA	Bad	N	Bad	N	Bad	N	Bad
No. 19	N	N	SW	Good	S-GA	Good	S-VW	Fair	N	Fair	N	Fair
No. 20	S	MS	MS-HW	Fair	GA-MS-HW	Fair	N	Fair	N	Fair	MS-HW-PA-VW	Bad
No. 21	S	S-HW	S-HW	Fair	BS-HW-GA	Poor	BS-HW-VW-GA	Poor	N	Poor	N	Poor
No. 22	N	N	N	Good	S-GA	Good	BS-PA	Bad	N	Bad	N	Bad
No. 23	S	S-HW	S-HW-SW	Fair	S-HW-GA	Fair	MS-HW-GA	Poor	N	Poor	N	Poor
No. 24	N	HW	HW	Good	S-HW-GA	Good	N	Good	N	Good	N	Good

Industry News (Continued)

→ from Page 47

American Society of Refrigerating Engineers, the American Society for Metals, the Saint Paul Athletic Club, the White Bear Yacht Club, and Saint Paul Lodge No. 3, A. F. & A. M., and of Osman Temple of the Shrine.

John Hogenson dies

News has just been received of the death of John Hogenson, brother of

the founder of Chicago Vitreous Enamel Product Company, and uncle of W. and E. Hogenson, president and executive vice president respectively of the Cicero Company.

Mr. Hogenson died Tuesday, October 17, at the age of 78, following several months of failing health. He was formerly with Chicago Vitreous, but had been retired from active service in recent years. He was well known and extremely well liked by all members of the organization.

Tappan receives partial reconversion OK

Paul R. Tappan, president of the Tappan Stove Co., Mansfield, Ohio, advises that the War Production Board and the War Manpower Commission have given the company the green light for a partial reconversion from war production to the manufacture of gas ranges.

W. Hubert Tappan, vice president of the company, stated that the necessary allocation of raw materials has been secured to start by Nov. 1.



WHEN you plan for peacetime production you will, of course, include wider ranges of color and design, taking full advantage of the newly developed frits.

They also insure a high degree of durability, resistance to acids, weather and abrasion. The colorful surface does not pit or fade, is quickly and easily cleaned—always.

But no finish can retain these qualities *permanently* unless it is applied to the right sort of base metal.

That is why U·S·S VITRENAMEL has long enjoyed the patronage of manufacturers of high grade porcelain enamel products.

Right now porcelain on U·S·S VITRENAMEL is meeting the toughest tests in its history, serving with our armed forces in hospitals, laboratories, kitchens, mess halls and lavatories.

The specially processed surface of U·S·S VITRENAMEL enables frit and steel to fuse into practically a solid

unit. Its composition assures extreme forming, welding and fabricating adaptability. U·S·S VITRENAMEL Sheets also remain flat, are rigid and strong enough for structural work in store-fronts, office buildings and homes.

As your plans for the future come closer to fruition, be sure you have up-to-date data on U·S·S VITRENAMEL Sheets. Our technicians will be glad to consult with you on production problems. Drop us a line today.

U·S·S VITRENAMEL SHEETS

CARNEGIE-ILLINOIS STEEL CORPORATION

Pittsburgh and Chicago

Columbia Steel Company, San Francisco, Pacific Coast Distributors
United States Steel Export Company, New York



UNITED STATES STEEL

Eastern enamellers meet in Baltimore (Continued)

Widening horizons for porcelain enamel

The subject matter of Mr. Mackasek's talk was similar to that given before the Chicago District Enamellers at their September 23rd meeting. (See October *finish*.) He continued on an optimistic note in regard to the future of the enameling industry providing, of course, that the enameling plants take advantage of all of the improvements in materials and processes as they become available after the war.

In referring to this point, and to the fact that the industry likes to consider itself an old, old institution, he said, "Although as an industry we like to trace our beginnings far back into ancient history, we are, in reality, an infant industry. Only in recent years have we been able to develop in our product the various qualities that are necessary for specific service and applications. This progress which has merely begun must be continued if we are to produce a quality that will carry us forward in the postwar market against rising competition."

As a further note of warning against complacency he continued, "Evidence presented by the Porcelain Enamel Institute Market Research Committee has indicated a vast market for all porcelain enameled products in the postwar period. Such a bright prospect, however, should not lead us to the assumption that we have nothing further to worry about. Competitive materials are also eyeing these same fields as fertile pastures, and they will put forth great effort to cut into those fields which we have always regarded as primarily our own. Such action is already indicated in the reflector industry."

Mr. Mackasek's comment on the possibilities for wider use of color should be of interest: "A wider use of color is anticipated. It is not sufficient for us to be satisfied with the fact that we have numerically a wider range of colors and shades than any competitive material. In addition to these, we have an opportunity of de-

veloping combinations of colors and intricate designs that can be worked out to produce more beautiful exteriors and interiors than is possible with any other medium. New methods of color application make possible designs beyond what has ever been accomplished before."

He stressed the importance of group meetings such as those sponsored by the various Enamellers' Clubs, and the desirable effect on enameling activity that should result through the dissemination of constructive information through these channels.

Organization to be studied

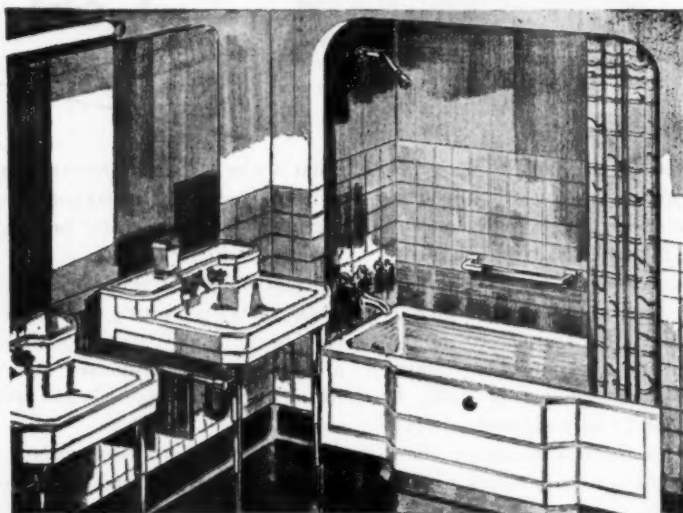
During the business session of the Club there was some discussion in

regard to organization policies and program planning. As a result of the discussion Nathan R. Klein, president of Caloric Gas Stove Works, was appointed chairman of a committee to make a thorough study, not only of the Eastern Club's policies, but of the policies and plans of other active Enamellers' Clubs. This committee was charged with the responsibility of presenting proposals for any recommended changes at the next meeting of the Club.

*Two pages of photos
Eastern Enamellers
Chicago Enamellers
See Pages 26 and 27*

*report on Chicago meeting in
October Finish*

Solving a traffic problem the story of the two-washstand bathroom



Eljer Company of Ford City, Pa., manufacturers of porcelain enameled cast iron and vitreous china plumbing fixtures, are doing a worthy job of educational advertising.

One of the ideas presented in recent promotional literature has to do with the "morning traffic tie-up" which is customary in single bathroom homes. This and other ideas are based on women's recommendations.

"Women tell us . . .", says the

Eljer promotion, "We know now that what we need is a moderately sized bathroom with two washstands instead of one, a recessed tub and shower with a solid grip rail, and above all, an entire room that is easy to keep clean . . ."

We vote with Eljer for the double "washing" facilities, and suggest that the enameler might assist in connection with the "entire room that is easy to keep clean."

TIME-PROVED

ZIRCONIUM GLAZE OPACIFIERS



PERFORMANCE is the proof of any product! And it is on the strength of their record that Zirconium Opacifiers are winning more backers among ceramists every day. Far from being replacements for tin, they have many times demonstrated their own inherent superiorities. Here, for instance, are a few actual reports from users:

"Quite pleased with the way Zircopax glaze is performing."

"All the opacifier we use is Zircopax and it does a good job."

"...much encouraged with results on these glazes (made with TAM Zirconium Opacifiers) and will do more work with them."

"Getting good results with 8½% Zircopax, two fire, cone 4 to 5 glaze."

"This glaze (made with Zirconium Opacifiers) is between 1¼¢ and 2¢ a pound cheaper than old tin glaze."

TITANIUM

ALLOY MANUFACTURING COMPANY



Registered

U. S. Pat. Off.

To help you obtain top glaze results, TAMCO maintains two services that are available at all times: (1) Our Service Development Division, at the plant, and (2) our field engineers who are always glad to work with your production department.

BACK THE ATTACK—BUY MORE THAN BEFORE!

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